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(0098-)-

SITE INSPECTION REPORT

SITE: Pacific Fruit Express
ADDRESS: 2501 E. Fairland Stravenue, Tucson, AZ 85713
EPA ID #: AZD045804325
STATE ID #: 235

PREPARED BY:

NAME: Judy Heywood, Hydrologist
DATE: March 7, 1989

Arizona Department of Environmental Quality
Office of Water Quality
Groundwater Hydrology Section
Superfund Hydrology Unit

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1.0 INTRODUCTION

A Preliminary Assessment (PA) of the Pacific Fruit Express (PFE) facility was completed by Ecology and Environment, Inc for EPA on February 11, 1983. The PA recommended that a Site Inspection should be conducted at this facility, since some possibility existed that a release to the environment by contaminants may have occurred. There was incomplete documentation on the use, storage, and chemical characteristics of the solvents used and wastes generated at the PFE facility. (1)

The purpose of this report is to summarize investigative efforts (including groundwater and soil sampling) and make recommendations for further action.

2.0 SITE CHARACTERIZATION

2.1 Site History and Description

The PFE facility has been operated as a division of Southern Pacific Railroad from 1976 to present. From 1907 to 1976, PFE was a division of Union Pacific and Southern Pacific Railroad. PFE has occupied the current site for 81 years, since 1907. (2)

PFE is located at 2501 E. Fairland Stravenue in Tucson, Arizona, within Township 14 South, Range 14 East, Section 20, [(D-14-14)20].

PFE employs 400 people at this facility. The manager of this facility is Mr. W. T. Schuler. (2)

The PFE occupies 110 acres at this location. The facility includes approximately 30 structures and 15 railroad side tracks throughout the yard. In addition, the facility has an oil skimmer and surface impoundment on site. The facility has doubled in size since 1907, due to additional railroad tracks. PFE had one other facility located in the Tucson area, an ice plant. The ice plant was located at Euclid and Broadway Roads from 1907 to 1968, when it burned down. (2)

The PFE facility is completely enclosed with an eight foot chain-link fence. Access to the site is made through a manned security gate.

2.2 Process Description

The PFE is not a manufacturing facility. The PFE facility, at this location, cleans, repairs, and maintains refrigerated railroad cars. The refrigerated cars are equipped with diesel generators to power the refrigeration units. PFE rebuilds and repairs the generators and refrigeration units. In addition to the repair of refrigerated cars, PFE also maintains railroad cars to Federal Railroad Administration Standards, this includes the inspection and maintenance of the car's brakes, wheels, and structure. (2)

Prior to 1955, railroad cars were not equipped with diesel generators or heaters. The cars used ice for cooling and alcohol heaters. In recent years, the demand for refrigerated railroad cars has dropped off and the scope of work at PFE has shifted toward the repair and maintenance of freight cars. (2)

Chemicals are used by PFE in the repair and maintenance of railroad cars. Solvents and alkaline cleaners are used to clean parts from the generator and railroad cars. Freon is used to recharge the cooling systems of the refrigerated cars. Paints and related thinners, etc., are used to refurbish the railroad cars. Oil and other lubricants and automotive fluids are used in conjunction with the generators. (2)

FIGURE 1: Location Map

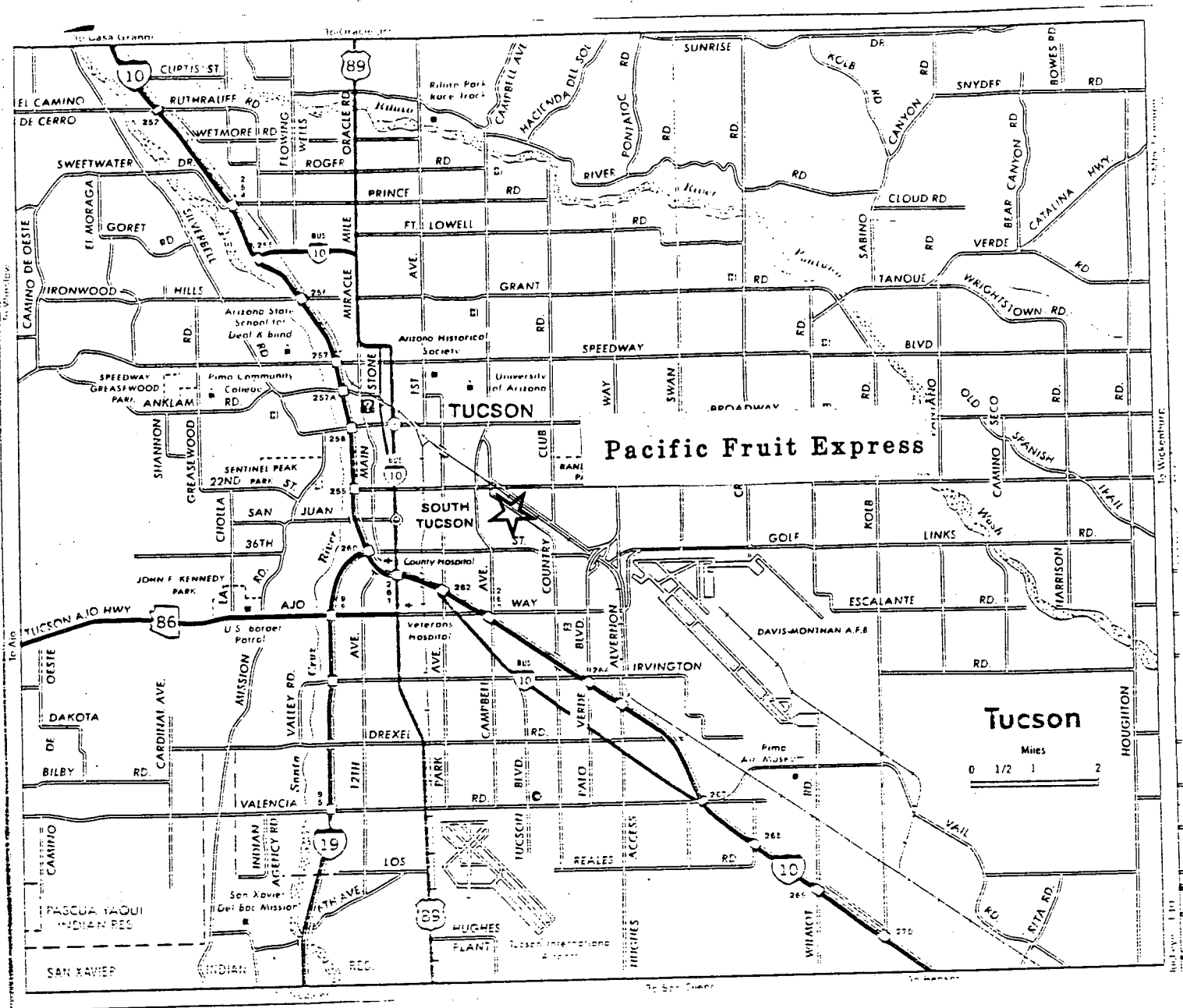


FIGURE 2: Site Map

EXPLANATION:

- PFE Property Line
- ▨ Surface Impoundment
- ▲ Drum Storage
- Unidentified Structure
- ⊙ Well
- * Underground Solvent Tank
- ⬤ Waste Pile



2.3 Waste Management Practices

A complete list of hazardous substances and the chemical composition of compounds used at this site is unavailable. In 1985, PFE switched from the chemicals that it used in the past, to a Southern Pacific Railroad approved list of compounds. PFE could not provide a list compounds used at this facility prior to 1985 to ADEQ. (2)

According to the Southern Pacific approved list of compounds, the repair and maintenance activities at the PFE facility generate the following wastes: (2)

<u>WASTE</u>	<u>FORM</u>	<u>QUANTITY</u>
Diesel Fuel	Liquid	Unknown
Used Oil	Liquid	Unknown
Spent batteries	Solid & Liquid	Unknown
Nickel Cadmium & Acid		

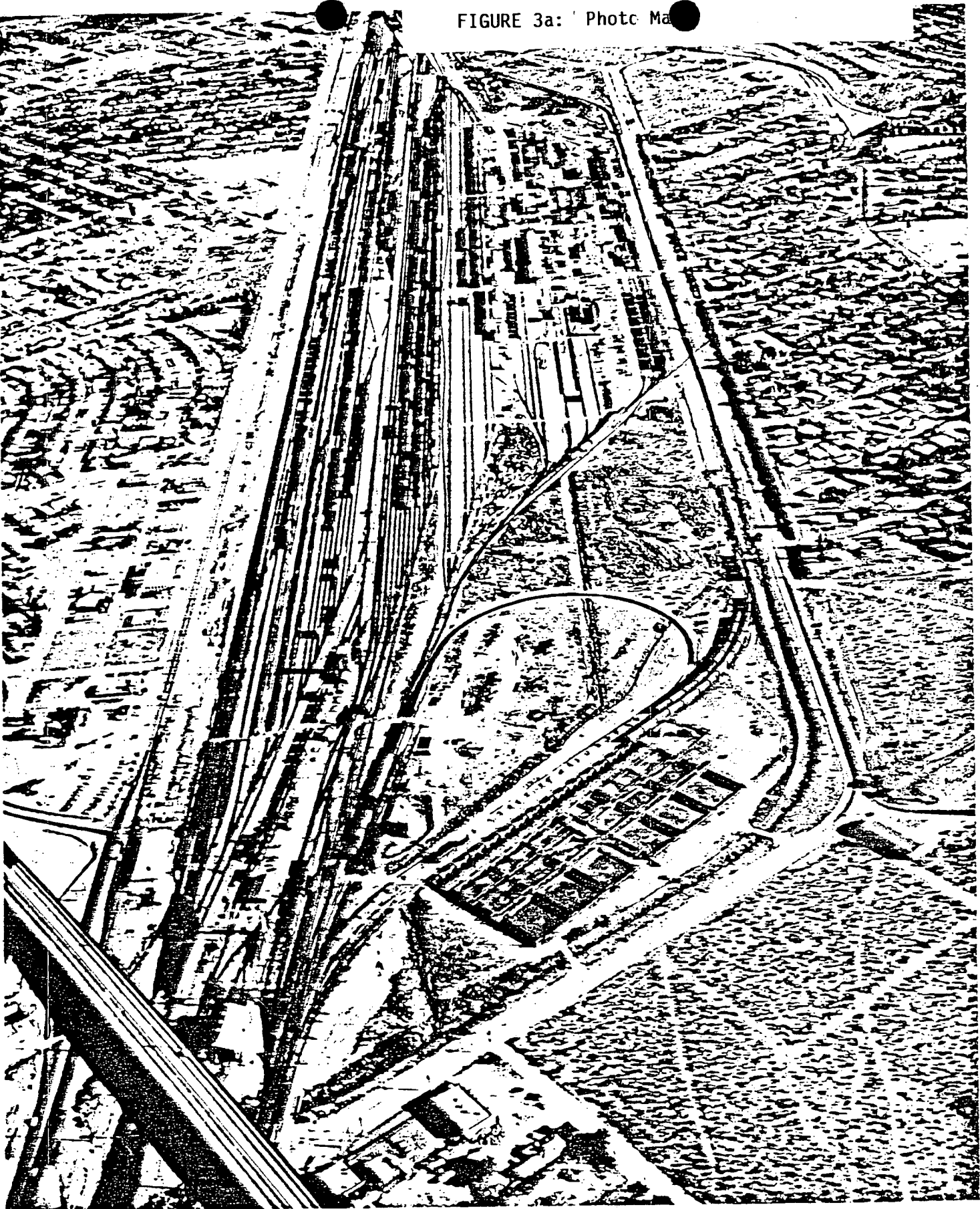
The following compounds are used at PFE: (2)

<u>COMPOUND</u>	<u>FORM</u>	<u>QUANTITY</u>
SP-312 Alkaline Cleaner	Liquid	6,000 gal./yr.
SP-325 Solvent Paint	Liquid	500 gal.
based spirits		
Turco Alkaline Cleaner	Dry powder	500 gal.
Freon 113 Refrigerant	Gas	400 gal./yr.
Isopropyl Alcohol	Liquid	Unknown
368GL Petroleum Dis-	Liquid	Unknown
tillate Degreaser		
Ethylene glycol	Liquid	Unknown

Wastes generated at PFE are treated and/or stored as follows: (2)

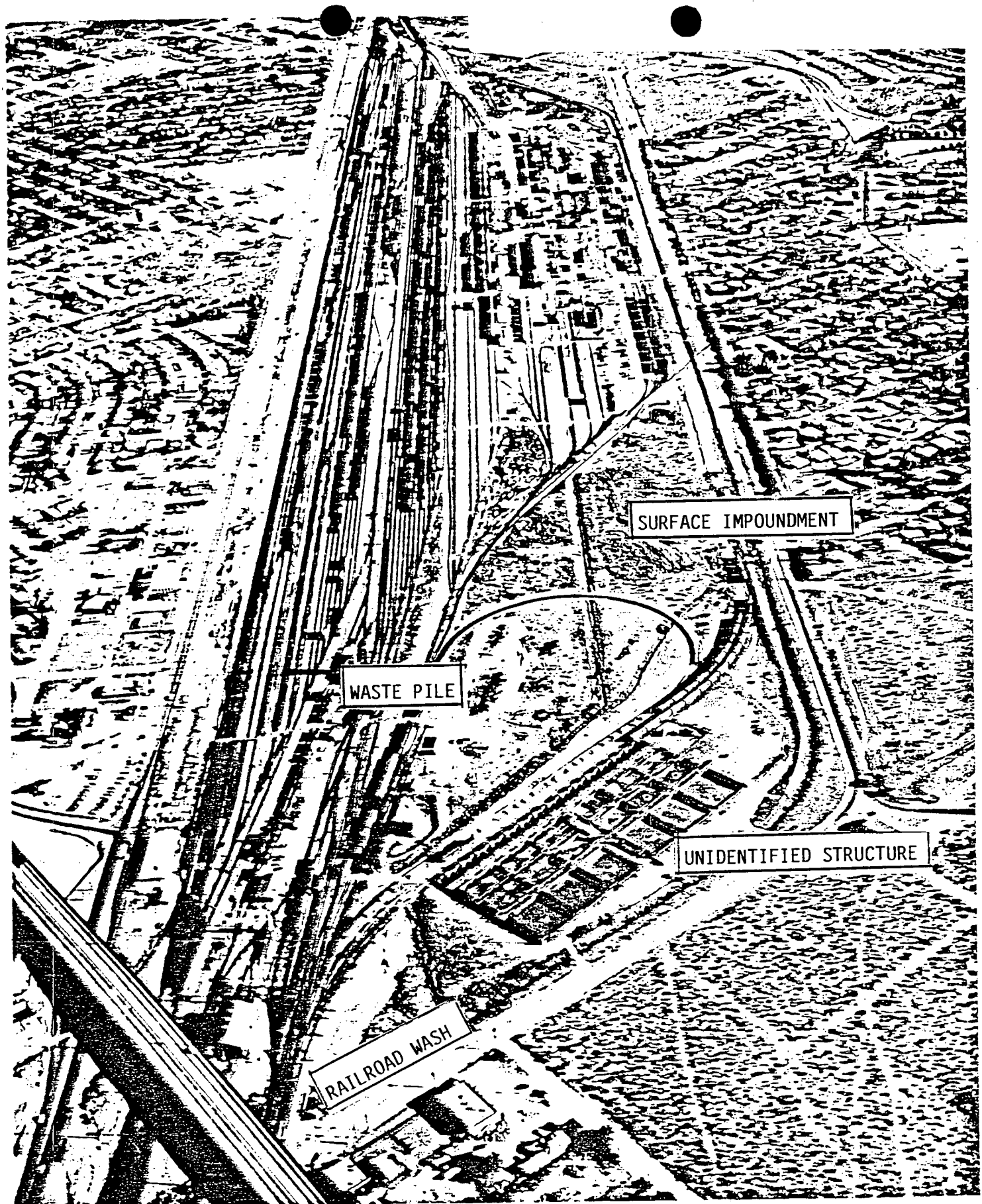
1. Drum storage area located at western end of facility. Used batteries and drums of waste solvent, thinners, and other liquid waste are stored in the paved fenced area until they are removed from the facility. The storage area has numerous floor drains that connect to the extensive stormwater drainage system through the facility. This storm drain system drains into the oil-water separator and detention basin. The storage is paved and fenced.
2. Waste oil sump - located near the mechanical refrigeration shop. The waste oil is periodically pumped out and removed from the facility by an oil recycling firm (Metro Oil).
3. Oil-water separator - This is a gravity separator with a wier system in which stormwater and industrial wastewater are separated. The oil is skimmed off, put into drums, and picked up by an oil recycling (Metro Oil) firm and the waste water is discharged into the Tucson city sewer and/or stormwater detention basin. This separator is located adjacent to the shop area.

FIGURE 3a: Photo Map



TUCSON CAR SHOP

FIGURE 3b: Photo-Map



TUCSON CAR SHOP

4. Impoundment - The PFE railyard is underlain by a complete drainage system. The system drains the surface water and wastewater runoff from the entire facility. The system intake drains are located throughout the facility including the railyard, shop areas, oil & water separator, materials storage area and waste-drums and battery storage area. This gravity drainage system channels the flow into the surface impoundment. The discharge can be handled in two ways: (1) The discharge is diverted into the belt skimmer pond where the surface oil and grease is skimmed off. The oil is collected in drums and hauled off site. The discharge is then diverted to the surface impoundment. The skimmer pond and the connecting ditches are made of cement: and, (2) The discharge can bypass the skimmer pond and flow directly into the surface impoundment.
5. A waste pile of stained soil, unmarked drums, and debris is located in the northwest section of this facility. This waste pile, shown on Figure 5 and Photos # 6, 18, and 21, is approximately 75 feet in length, 20 feet in width, and 12 feet in height.

The surface impoundment covers approximately five acres and is estimated by PFE to have a depth of ten feet. The pond is equipped with; (1) a submersible pump to be used to divert excess water into the city sewer to prevent overflow; and, (2) a spillway on the northwest side of the pond. The spillway discharges excess water into Railroad Wash, which flows northwest into Arroyo Chico, a tributary of the Santa Cruz River to the west.⁽²⁾

The Preliminary Assessment for facility, dated 1983, describes the surface impoundment as unlined. The PFE reports that when the pond was constructed in 1977, it was equipped with a PVC liner of unknown thickness.⁽¹⁾

At the present time, the used oil is hauled off site by Metro Oil of Tucson; hazardous waste is handled by Hazardous Chemical Environmental Services of Tucson, and the solid waste is handled by the City of Tucson Sanitation Department. PFE did not provide ADEQ with the information regarding historical disposal of hazardous waste.⁽²⁾

PFE installed four underground storage tanks at this facility in 1957. Of these tanks, one 1,500 gallon capacity tank is used to store regular gasoline; one 1,500 gallon capacity tank is used to store unleaded gasoline, one 500 gallon capacity tank is used to store diesel fuel, and one 3,000 gallon tank is used to store solvent. These tanks have never been tested and PFE plans to remove all tanks by the end of 1989. In addition to these underground tanks, PFE has the following above-ground tanks: lube oil tank with 500 gallon capacity, installed 1957; ethylene glycol with a 200 gallon capacity, installed 1957; and small containerized parts washers located in shop area which uses a degreaser to clean small parts.⁽²⁾

PFE filed a Notification for Underground Storage tanks as required by Section 9002 of RCRA on 11/18/87. PFE reported two gasoline tanks at the facility. The underground solvent tank was not reported on this form. A review of ADEQ files could not locate a Notification form for this tank.

Hazardous materials used by PFE are stored in drums in the materials storage warehouse on site. Additional hazardous materials storage on site includes, a 3,000 gallon underground storage tank that is used to store solvent, an above-ground storage tank with a capacity of 200 gallons for the storage of ethylene glycol, and containerized solvent parts washers located in the shop areas. PFE did not provide ADEQ with the volumes of hazardous materials used at this facility presently or in the past.(2)

PFE reports they have no knowledge of any spills, leaks, or releases of hazardous materials to the environment at this facility. PFE also reports they have never tank-tested any of the underground tanks at this facility and do not know the present status of these tanks.(2)

The calculation of hazardous waste quantity generated on the PFE facility is based on: (1) the once through volume of the solvent underground storage tank; (2) approximate one through volume of the surface impoundment, and (3) approximate volume of the waste pile.

The total estimated liquid waste quantity is 1,130,000 gallons or 22,600 drums (50 gallon capacity). The approximate volume of the waste pile is calculated to be 667 cubic yards. The total waste volume (both liquid and solid) is equivalent to 25,161 drums; with a 50 gallon capacity.

The hazardous materials used at PFE are stored in accordance with OSHA guidelines. The explosion hazard at this facility is rated as low.

The hazardous wastes generated at this facility are stored in drums and stored in a locked fence enclosure. The surface impoundment is also fenced and locked. The waste pile of stained soil, located in the northwest portion of PFE, is located within the fenced property line.

2.4 Permits

PFE has the following permits:

- RCRA Small Quantity Generator permit - AZD045804325
- Pima County Air Quality permit - 00058000
(in association with paint shop)
- City of Tucson Sanitary Sewer permit
- NPDS Permit - AZ0021687

The NPDES permit was issued for the surface impoundment's anticipated releases into the Arroyo Chico Wash. This permit was canceled in 1979 for non-use.⁽²⁾

The Sanitary Sewer permit requires the facility to analyze the discharge for oil and grease and suspended solids. The results of these tests were not available to ADEQ.⁽²⁾

2.5 Remedial Action

No remedial actions have taken place at this facility.

3.0 ENVIRONMENTAL SETTING

3.1 Physical Surroundings

PFE is located in Tucson, Arizona adjacent to the main railroad switching yard on the south side of town. The PFE facility occupies 110 acres and is located in an area of mixed use (i.e. residential, commercial, and industrial). The nearest off-site buildings are located 0.10 of a mile to the south in a residential neighborhood.

The 1980 Census reports the city of Tucson had a population of 395,635. Tucson is located in the Tucson Basin, which is bounded on the north by the Tortolita and Santa Catalina Mountains, on the east by the Tanque Verde, Rincon, Empire, and Santa Rita Mountains, on the west by the Sierrita, Black, and Tucson Mountains.⁽³⁾

There are no known wetlands, critical habitats, endangered species, or nature reserves within a three mile radius of PFE.

The net precipitation for November through April is calculated to be -16.43 inches. The one year - 24 hour rainfall is 1.5 inches.⁽⁴⁾⁽⁵⁾

Some of the natural vegetation in and around the surface impoundment appears to be stressed. See Photo Documentation, Appendix C. In addition, several areas on site have stained soil and/or pavement stains.⁽⁶⁾

3.2 Geology

The Tucson Basin is located in the Basin and Range physiographic province. This northwest trending valley encompasses 1,000 square miles. The basin fill is composed of water-bearing sedimentary rocks and unconsolidated sediments. The mountain ranges surrounding the basin are composed of crystalline igneous rocks, metamorphosed sedimentary rocks, and volcanic rocks. The ages of these basement rocks range from Precambrian to Tertiary. The basement rock complex provides the source of sediment for the basin fill.⁽⁷⁾

The basin has been filled with alluvial deposits eroded from the mountain ranges. These sedimentary deposits are, in ascending order: Pantano Formation, Tinaja beds, and the Fort Lowell Formation. The alluvial sediments have been estimated to be approximately 800 feet thick in the area around the facility.⁽⁷⁾

TABLE 1.

LOCATION OF ACTIVE WELLS WITHIN A THREE MILE RADIUS OF PFE

Source: ADWR Data Base

WELL	LOCATION	ADWR WELL REGISTRATION	USE	DATE DRILLED	DEPTH WELL	WATER LEVEL	DATE MEAS.
(D-14-13)01dab1		55-620283	P	1945	351	174	1982
(D-14-13)01dab2		55-620284	P	1973		179	1985
(D-14-13)11dba		55-516154	T	1987	100		
(D-14-13)11dbb		55-635645	H	1953	250	115	1987
(D-14-13)11dbc		55-628545	H	1987	230		
(D-14-13)12dbc		55-516158	T	1987	110		
(D-14-13)12dbc		55-516156	T	1987	124		
(D-14-13)12dca		55-620307	-	1965	500	135	1986
(D-14-13)12dcb		55-517519	M	1987	84		
(D-14-13)12dcd		55-516263	M	1986	87		
(D-14-13)12ddc		55-516157	T	1987	125		
(D-14-13)13bab		55-517520	M	1987	69		
(D-14-13)13cbc		55-619923	P	1946	274	72	1985
(D-14-13)14eca		55-518480	M	1987	43		
(D-14-13)14ecb		55-518479	M	1987	41		
(D-14-13)14ecd		55-518481	M	1987	47		
(D-14-13)14acd		55-518482	M	1987	47		
(D-14-13)14d		55-640226	H		25		
(D-14-13)14dda		55-507083	M	1984	135		
(D-14-13)23abd		55-619926	P	1950	214	66	1985
(D-14-13)23ac		55-646738	I		125		
(D-14-13)23ac		55-646739	I		150		
(D-14-13)23aca		55-800629	I	1952	200		
(D-14-13)23b		55-605198	H	1964	215		
(D-14-13)23ba		55-635564	H	1964	100		
(D-14-13)23bac		55-800651	H	1959	150		
(D-14-13)23bad		55-619925	P	1950	202	66	1985
(D-14-13)23ca		55-629637	H				
(D-14-13)23cdd		55-802875	P	1948	106		
(D-14-13)24abb		55-616496	H	1939	300		
(D-14-13)24abb		55-616497	H	1947	300		
(D-14-13)25ad		55-639381	H	1942	435		
(D-14-13)25ba		55-628990	I				
(D-14-13)25c		55-800131	H				
(D-14-13)25cbd		55-620195	P		160		
(D-14-13)25daa2			T	1939	500	162	1987
(D-14-13)25daa3		55-503192	T	1982	615	157	1987
(D-14-13)26aca		55-619921	P	1929	202		
(D-14-13)26b		55-636452	H	1950			
(D-14-13)26bb		55-636228	H	1951			
(D-14-13)26bcd		55-639596	H	1933	66		
(D-14-13)26bd		55-635623	H	1955	105		
(D-14-13)26dbb		55-618920	P	1929	282	90	1985
(D-14-13)35acc			P	1966	402	126	1985
(D-14-13)35ada		55-620201	P	1945	176		
(D-14-13)36bad		55-620144	P		529	147	1985
(D-14-13)36cac		55-620145	P		536	159	1987
(D-14-13)36ccc		55-620147	P	1951	516	145	1985
(D-14-13)36dcd		55-620149	P	1943	270	124	1985
(D-14-14)03cbc		55-620126	P	1940	511	232	1985

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(D-14-14)04aad2		55-620128	P	1966	500	212	1985
(D-14-14)04acb		55-640146	H	1945			
(D-14-14)04bbb		55-643943	H				
(D-14-14)04cda		55-801789	H		179		
(D-14-14)04cdb		55-620239	P	1971	800	219	1985
(D-14-14)04dac2		55-620238	P	1971	800	234	1985
(D-14-14)05adb2		55-620206	P	1977	594	209	1985
(D-14-14)05dac2		55-620204	P	1977	638	227	1985
(D-14-14)06dab		55-618688	T	1969	460	242	1987
(D-14-14)06dac		55-618689	H	1976	600		
(D-14-14)07		55-639537	H				
(D-14-14)07aca		55-618693	H	1920	237		
(D-14-14)07add		55-618690	H	1966	600		
(D-14-14)07bab		55-618691	H	1968	601		
(D-14-14)07bad		55-618694	H	1937	500		
(D-14-14)07bca		55-618692	H	1962	614		
(D-14-14)07bda		55-618687	H	1915	480		
(D-14-14)07dda2		55-620174	P	1974	904	201	1985
(D-14-14)08baa		55-620175	P	1923	449	236	1985
(D-14-14)08bab		55-620173	P	1921	510	243	1986
(D-14-14)09aac2		55-620129	P	1953	640	245	1985
(D-14-14)09abc		55-620125	P	1946	536	239	1985
(D-14-14)09bcc		55-803260	P	1928	351		
(D-14-14)09bcc		55-507697	H	1984	475		
(D-14-14)09bcd		55-620179	P	1976	1007	246	1985
(D-14-14)09 c		55-636450	H				
(D-14-14)09dac2		55-620030	P	1971	300	273	1986
(D-14-14)10acb		55-603442	H	1978	449		
(D-14-14)10acc		55-620036	P	1953	560	260	1984
(D-14-14)10acc		55-620037	P	1928	312		
(D-14-14)10bcc		55-619991	P	1927	620	254	1986
(D-14-14)10dcb3		55-620032	P	1977	654	265	1984
(D-14-14)11bac2		55-619987	P	1977	644	262	1984
(D-14-14)11ccb2		55-620035	P	1971	800	273	1986
(D-14-14)14acc2		55-620013	P	1969	987	304	1986
(D-14-14)14cbc		55-085345	H	1980	403		
(D-14-14)14cda		55-633008	H	1977	430		
(D-14-14)15bcd1		55-620007	H	1950	221		
(D-14-14)15cdb2		55-620038	--	1945	450	254	1986
(D-14-14)15cdb3		55-620039	P	1969	1015	253	1986
(D-14-14)15dbb		55-800008	H	1912			
(D-14-14)16aaa		55-518607	M	1987	370		
(D-14-14)16abb		55-518606	M	1987	330		
(D-14-14)16add		55-620005	P	1928	310		
(D-14-14)16cbb		55-518605	M	1987	300		
(D-14-14)16cbb1		55-620177	P	1944	370	198	1982
(D-14-14)16cbb2		55-620178	P	1969	1220	209	1986
(D-14-14)17acc2		55-620185	I	1974	985	204	1986
(D-14-14)18abd2		55-620180	P	1974	700	182	1985
(D-14-14)18bab		55-516155	T	1987	150		

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(D-14-14)18bca		55-517521	M	1987	65		
(D-14-14)19bdd2		55-620197	P	1948	557	172	1984
(D-14-14)20aca		55-620189	P	1953	545	209	1986
(D-14-14)20bab		55-620141	P	1965	500	196	1986
(D-14-14)21aac		55-518604	M	1987	300		
(D-14-14)21bcc		55-620011	P	1947	434	222	1986
(D-14-14)21caa		55-620012	P	1950	502	233	1986
(D-14-14)22cba2		55-620016	P	1971	800	255	1986
(D-14-14)22dcb		55-620009	P	1950	820	263	1986
(D-14-14)23aab		55-620018	P	1950	1000	302	1986
(D-14-14)26dab		55-503161	H	1982	1124		
(D-14-14)26ddd		55-503160	H	1982	1015		
(D-14-14)28dab		55-620017	P	1960	504	254	1985
(D-14-14)28dcb		55-504589	H	1983	400		
(D-14-14)28ddc		55-507084	M	1984	315		
(D-14-14)29aaa		55-620006	P	1948	740	234	1985
(D-14-14)29acb		55-620010	P	1953	478		
(D-14-14)29cbc		55-620139	P	1964	885	200	1986
(D-14-14)30abd		55-622175	H	1946	225		
(D-14-14)30c		55-801581	H		116		
(D-14-14)30aca		55-605205	H	1986	300		
(D-14-14)30cd		55-801479	H				
(D-14-14)30dbd		55-622176	H	1950	545		
(D-14-14)31		55-639877	H				
(D-14-14)31aac		55-603699	H	1947	225		
(D-14-14)31ab		55-606077	H	1947	180		
(D-14-14)31bcc		55-515256	M	1987	97		
(D-14-14)34daa		55-506981	M	1983	330		
(D-14-14)34dab		55-506982	M	1983			
(D-14-14)35aa		55-621581	H	1941	401		
(D-14-14)35ada		55-621582	H	1941	404		
(D-15-14)04		55-636134	H	1954	162		
(D-15-14)04		55-638611	H	1942	165		
(D-15-14)04		55-638478	H		120		
(D-15-14)04aac		55-639100	H				
(D-15-14)04abc		55-636830	H				
(D-15-14)04bdd		55-638534	H	1930	220		
(D-15-14)04c		55-635554	H	1960			
(D-15-14)04c		55-634949	I	1946	180		
(D-15-14)04ca		55-801165	H		150		
(D-15-14)04ca		55-632999	H	1970	150		
(D-15-14)04cba		55-635544	H				
(D-15-14)04cbc		55-505829	H	1983	230		
(D-15-14)04cc		55-638814	H	1976	250		
(D-15-14)04cca		55-633587	H		170		
(D-15-14)04ccb		55-621739	H	1960	150		
(D-15-14)04ccb		55-506305	H	1983	315		
(D-15-14)04ccc		55-633586	H	1973	280		
(D-15-14)04cda		55-635060	H				
(D-15-14)04cdc		55-607004	H		235		

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(D-15-14)04cdd		55-611544	H	1980	285		
(D-15-14)04dbb		55-609462	P	1957	310		
(D-15-14)04dbb		55-801819	--				
(D-15-14)04dc		55-610981	H		230		
(D-15-14)04dc		55-610918	H		230		
(D-15-14)04dcc		55-801793	H	1956	300		
(D-15-14)04dd		55-622153	I	1940	200		
(D-15-14)05abd		55-633770	H		300		
(D-15-14)05dcc		55-510673	H	1985	260		
(D-15-14)06aba		55-085579	H	1981	856		
(D-15-14)06b		55-636502	H		316		

p= public supply, H = domestic, I = irrigation, T = test

H = monitoring, -- = unknown

Regionally, the Pantano Formation consists of poorly cemented to well cemented sandstones, conglomerates, mudstones and gypsiferous mudstones. The Pantano Formation is estimated to be thousands of feet thick within the Tucson Basin. (7)

The Tinaja beds include three sedimentary units: the lower, middle, and upper Tinaja beds. The lower Tinaja beds consist of silty gravel and conglomerate. The middle Tinaja beds is made up of a thick sequence of mudstone, gypsum, and anhydrite-bearing clayey silt. The upper Tinaja beds consist of unconsolidated sand and clayey silt layers. The Tinaja beds vary in thickness throughout the Basin, but are estimated to be 2,000 feet thick in the middle of the basin. (7) (8)

The Fort Lowell Formation consists of unconsolidated gravel and clayey silt and is approximately 250 to 360 feet thick in the area around the PFE facility. (8)

The surface soil deposits in the area around PFE belong to the Rillito-Latene-Cave association and consist of very shallow to deep, arid, calcareous soils. These soils are formed in old alluvium from mainly calcareous sedimentary rocks and granite. Slopes range from zero to eight percent, with a topography of generally a rolling surface, with numerous shallow drainage ways traversing the area from southwest to northwest. In the PFE area, the slope of the surface averages one percent. The elevation on the PFE facility ranges from 2,460 to 2,510 above sea level. (9) (10)

The permeability of the soil deposits at the top of the unsaturated zone is classified as moderate to high. City of Tucson well B-78 [(D-14-14)20bab] was the only well in the immediate area around PFE to have a well drillers log on file. This well is located 0.4 mile north of PFE. The well was drilled and logged to a depth of 500 feet. The log describes the formation material for the length of the entire well as sand, gravel, and sandy gravel. The hydraulic conductivity of these sediments is estimated to be greater than 10^{-3} cm/sec. This high permeability enhances the potential for an observed release to groundwater. Well logs for wells located approximately one mile or greater from PFE indicate that some layers of fine sand, sandy clay, and clay do exist. There does not appear to be a continuous clay layer through the area. (13)

3.3 Hydrology

3.3.1 Surface Water

Surface water runoff drains from the southeast to the northwest, from the PFE facility into Railroad Wash. Railroad Wash drains north into Arroyo Chico about $\frac{1}{2}$ mile from the facility. In turn, the Arroyo Chico drains into the Santa Cruz River about three miles further. In addition to the naturally occurring drainage patterns in the above paragraph, surface water runoff is diverted through a storm drain system to a surface impoundment on site. (10)

The PFE railyard is underlain by a complete storm drain system that drains the yard, shop areas, and oil and water separator. The surface water runoff drains are located throughout the facility including the drum and waste storage areas.

This storm drain system can either flow directly into the belt skimmer pond and then into the surface impoundment, or it can be diverted into the surface impoundment directly. (6)

The surface impoundment is described in the PA as an unlined pond. PFE has stated that a PVC liner (of unknown thickness) was installed with a one foot cover of soil in the pond. Date of installation of the pond, as stated by PFE was 1977. However, prior to 1988, this may have been a natural drainage basin as it is located at a low elevation on the PFE facility, and all drains are gravity drains. PFE has not provided ADEQ with historical documentation regarding the disposal of the surface and wastewater runoff from the storm drain system prior to the construction of the surface impoundment in 1977. The undated photograph of PFE (Figure 3) documents a drainage (ditch or wash) that runs in a westerly direction through the current pond area. This drainage appears to connect the stormdrain outlet to Railroad Wash. If stormwater and wastewater were discharged into this wash, the potential for an observed release to surface water is present. In addition, the potential for groundwater contamination through infiltration is increased. (1)(2)(6)(10)

The surface impoundment covers approximately five acres and is estimated by PFE to have a depth of ten feet. The pond is equipped with: (1) a submersible pump to be used to divert excess water into the city sewer to prevent overflow; and (2) spillway on the northwest side of the pond. The spillway discharges excess water into Railroad Wash, which flows northwest into Arroyo Chico, a tributary of the Santa Cruz River to the west. (10)

Due to the numerous surface drains throughout the PFE yard, waste disposed of or spilled on the ground or into the drains may enter the soil via the impoundment system. In addition, excessive flow may have spilled over into the surface water arroyos. (2)(6)

The Santa Cruz River flows northward and is located three miles west of PFE. The Santa Cruz River Channel is normally dry with flows occurring in response to direct precipitation. Flows occurring in the Santa Cruz River aren't directly utilized, but they do provide a source of recharge to the groundwater basin. The Railroad and Arroyo Chico are classified as intermittent drainage channels that only flow in response to rainfall.

No surface water samples were taken at this site.

3.3.2 Groundwater

The PFE facility is located in the central portion of the Upper Santa Cruz Groundwater Basin. The main source of groundwater within this basin is the sedimentary rocks and alluvium that compose the fill deposits. The geologic units that compose the valley fill, include, in ascending order: the Pantano Formation, the Tinaja bends, and the Fort Lowell Formation. These units are considered to compose a single unconfined regional and sole source aquifer. The Fort Lowell Formation provides most of the groundwater that is withdrawn from the Tucson Basin.⁽⁸⁾

Depth to water ranges from 82 to 301 feet below land surface within a three mile radius of the site, based on a 1982 survey. Depth to water under the site was approximately 220 feet with regional groundwater flow to the north-northeast. In 1986, water level data indicated that depth to water ranged from 72 to 316 feet below land surface within a three mile radius of the site. Depth to water under the site was approximately 210 feet. Regional groundwater direction in 1986 appeared to be to the north-northwest, but possibly more northerly in direction.⁽⁸⁾⁽¹¹⁾

There are 239 wells of record located within a three mile radius from the PFE facility. Of these wells, 54 are City of Tucson public supply wells, 73 are used for domestic purposes, 17 for monitoring, and 95 for other uses or unused. See Table 1 for locations of wells. The use of groundwater in a three mile radius around the PFE facility is mainly for public drinking water purposes.⁽¹⁴⁾

The target population for groundwater use in a three mile radius around PFE is 395,635. The city of Tucson relies on groundwater as its only source of water. The city of Tucson wells are blended to provide the entire city's water needs. The nearest public supply well is a city of Tucson well #B-19 [(D-14-14)aca], which is located ¼-mile northeast of PFE. The nearest operational well is a PFE owned well that is located on the facility. This well [(D-14-14)20dac] is used for industrial and drinking water purposes.⁽³⁾⁽¹⁴⁾

The water in the regional aquifer is reportedly a calcium-bicarbonate type of generally good quality. However, volatile organic compounds (VOCs) have been detected at high levels in the groundwater at several sites in the Tucson basin. These sites include three landfills along the Santa Cruz River approximately six miles north of PFE and the Tucson Airport Area (Federal Superfund site) six miles south of PFE.⁽⁸⁾⁽¹²⁾

4.0 SUMMARY OF INVESTIGATIVE EFFORTS

A Site Inspection of the PFE facility was conducted on August 2, 1988 by the Arizona Department of Environmental Quality (ADEQ). At the inspection, ADEQ was represented by Judy Heywood and Dan Williams. The PFE representatives were Armando Juarez and W. Pepple of Southern Pacific Transportation Company; Greg Shepherd, Environment Engineer for Southern Pacific Railroad (S.P.R.R.); and David Long, Attorney, S.P.R.R.

After an initial meeting with the above PFE personnel, an interview was conducted to address the specific site investigation questions. After the interview, a site tour was conducted. During the tour, ADEQ personnel photographed the facility. The photographs and accompanying log are included in Appendix C.

The PFE supplied ADEQ with photographs of the facility at the time of the field inspection. This undated photograph (Figures 3a & 3b) was taken prior to the installation of the surface impoundment. In the lower middle section of the photograph is a unidentified structure that appears to be a series of square ponds or lagoons. The structure and it's function are not known.

4.1 Groundwater

Groundwater was collected from wells in the area around PFE on September 14, and 15, 1988. The samples were analyzed for VOC, semi-VOC, inorganics, and metals. The well locations, construction data, and ownership information on the wells sampled are listed in Table 2. The results of the analysis are listed in Tables 4 and 5. Location of the wells sampled are shown in Figure 4.

Water samples were obtained from five wells in the area. In addition, a duplicate and a field blank were collected. A total of seven samples were submitted for analysis.

The following five wells were selected for sampling on the basis of two general considerations; (1) the north-northeasterly direction of the regional groundwater flow as shown on published maps, and (2) the probable influence on groundwater flow direction by high capacity wells in the immediate area around PFE.

Using this rationale, final well selection was dependent on well status (operational), well construction, well use, drillers log availability, and owners cooperation and scheduling.

The wells selected for sampling are:

(D-14-14)29aaa, City of Tucson (COT) C-3: This well is located 0.5 mile south of the PFE facility. This well was selected due to its upgradient location from PFE to provide a background sample. This well is a public supply well owned by the City of Tucson and is drilled to a depth of 735 feet and equipped with an electric line shaft turbine pump. The depth to water was measured at 233.5 feet below land surface on 12/31/85. The discharge, as measured with an in-line meter was 300 gallons per minute (GPM) at the time it was sampled on 9/15/88. The sample was obtained from a faucet on the discharge pipe. The well was pumping upon arrival at the site and for at least the 24 hours prior to sampling.

Table 2: Well Locations, Owners, and Construction Parameters

Well No. Location	Well Name	Owner	Casing Diameter	Screened Interval	Total Depth	Use1	Pump2
(D-14-14)17acc2	B-13	City of Tucson	16	250-320 360-330 440-470 490-500 490-550	935	P	T
(D-14-14)18cas	Ice	Crystal Ice	12	200-400	650	F	S
(D-14-14)18dcb	Kalil	Kalil Bottlers	12	220-498	500	F	S
(D-14-14)19bdd	B-33	City of Tucson	16	unknown	557	U	N
(D-14-14)20aca	B-19	City of Tucson	12	unknown	545	P	T
(D-14-14)20bab	B-26	City of Tucson	16	160-500	500	P	T
(D-14-14)20dac2	PFE	PFE	--	unknown	---	D	T
(D-14-14)21bcc	C-9	City of Tucson	14	unknown	434	P	T
(D-14-14)21caa	C-10	City of Tucson	12	unknown	502	U	N
(D-14-14)28dsb	C-15	City of Tucson	16	unknown	504	P	T
(D-14-14)29aaa	C-3	City of Tucson	16	unknown	735	P	T
(D-14-14)29acb	C-8	City of Tucson	16	unknown	478	P	T

1. Use of well-D=domestic, S=Stock, I=Irrig., F=public, U=unused.

2. Type of pump-S=Submersible, T= turbine, N= no pump

---WELLS SELECTED AS ALTERNATES

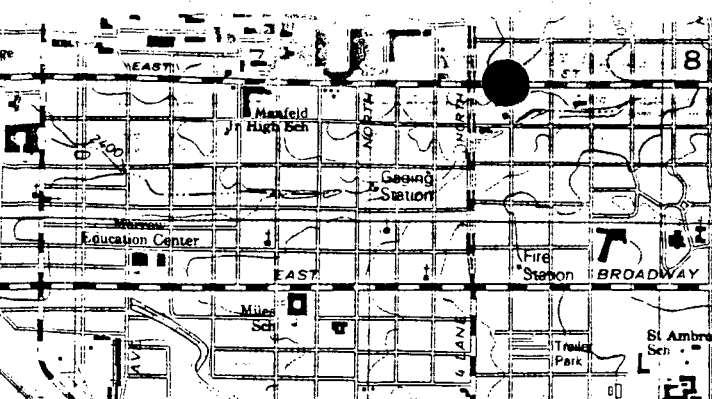
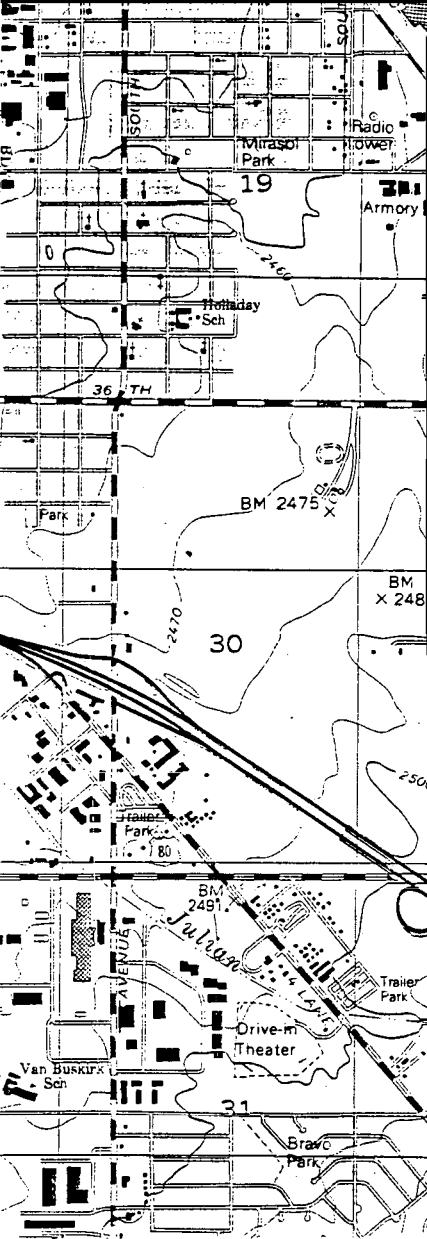
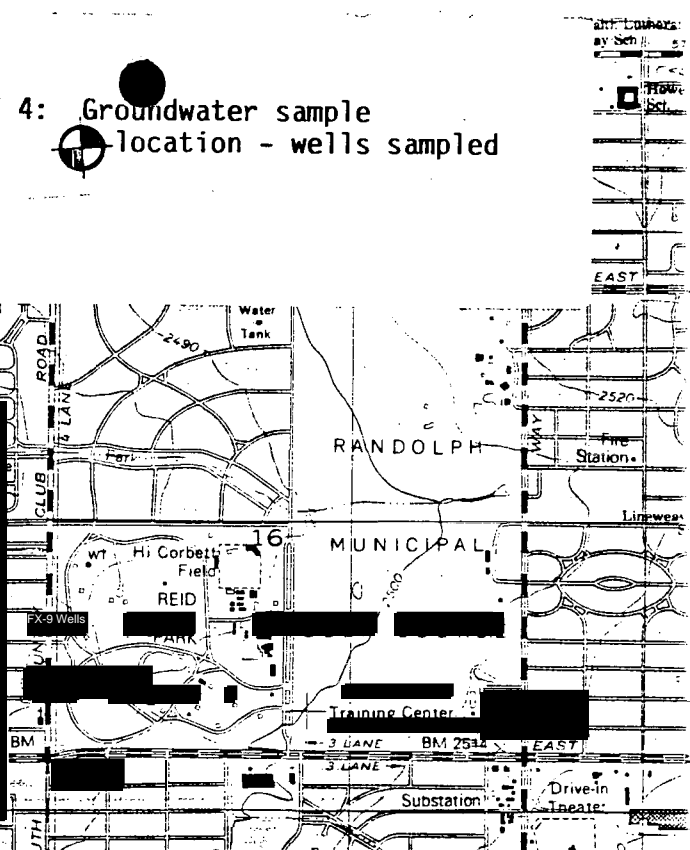


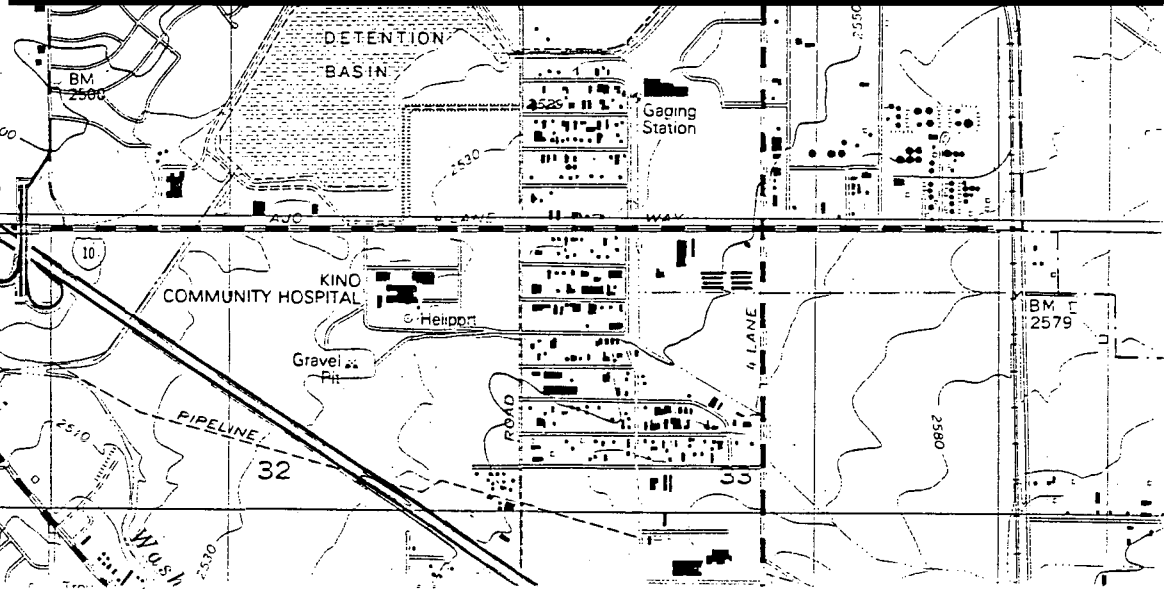
FIGURE 4: Groundwater sample location - wells sampled



FX-9 Wells



FX-9 Wells



(D-14-14)20bab, COT B-78: This city of Tucson public supply well is located 0.4 mile north of the PFE facility and potentially downgradient. The well was drilled to a depth of 500 feet and screened from 160 to 500 feet below land surface. The depth to water was measured at 196.4 feet below land surface on 1/2/86. The well is equipped with an electric line shaft turbine pump. The discharge, measured with an in-line meter, was 460 gpm at the sampling on 9/15/88. The sample was obtained from a faucet on the discharge pipe. The well was pumping upon arrival at the site and for at least the 24 hours prior to sampling.

(D-14-14)20aca, COT B-19: This City of Tucson public supply well is located 0.3 mile north and downgradient from the PFE facility. This is the closest off-site downgradient well and was drilled to a depth of 545 feet. This well is equipped with an electric line-shaft turbine pump. A discharge of 250 gpm was measured with an in-line meter at the time of sampling 9/15/88. The water level in this well was measured at 208.7 feet on 1/2/86. The sample was obtained from a faucet on the discharge pipe. The well was pumped 20 minutes prior to sampling.

(D-14-14)20dac2, PFE: This well is one of the two wells on site (the second well is not in service) and is used for both industrial and drinking water use. The construction data for this well is unknown. The well is equipped with an electric line-shaft turbine pump. A discharge of 200 gpm was measured with an in-line meter at the time of sampling 9/14/88. The water level in this well was measured at 189 feet on 12/7/87. The water sample was obtained from a faucet on the discharge pipe. The well was pumped for 75 minutes prior to sample collection. This well is located 0.1 mile north and 0.6 mile east of the surface impoundment on site.

(D-14-14)18dcb, Kalil: This well is located one mile northwest of PFE and is drilled to a depth of 500 feet. The screened interval is set at 220 to 498 feet below land surface. This well is potentially located downgradient from PFE under regional flow conditions. This well is equipped with an electric submersible pump. The water sample was obtained from a tap on the discharge pipe. The well was pumping upon arrival at the site and was cycling on and off for at least the 24 hour period prior to sample collection.

A sixth well, (D-14-14)21bcc, was selected for sampling but was out of service at the time sampling was planned.

A total of seven water samples (5 well samples, 1 duplicate, and 1 blank) were submitted to the EPA's Contract Lab Program (CLP) laboratory for analysis for VOC using EPA Standard Method 624, and for metals, using EPA standard methods.

Remaining analyses were performed by ADHS laboratory: semi-VOA's using EPA Standard Method 625 and inorganic parameters, including cation anions, alkalinity, hardness, and total dissolved solids using EPA standard methods.

TABLE 3.

WELL AND SOIL SAMPLE LOCATIONS
LABORATORY SAMPLE NUMBERS

WATER SAMPLE LOCATION NUMBERS

WELL LOCATION	WELL OWNER	CLP VOA #	CLP METALS #	ADEQ SAMPLE #	ADHS SAMPLE #
(D-14-14)20dac2	PFE	YE-818	MYC-690	PFE-01	12016
(D-14-14)20dac2	PFE	YE-819	MYC-691	PFE-02	12017
Field Blank	---	YE-820	MYC-692	PFE-03	12018
(D-14-14)18dcb	Ka111	YE-821	MYC-693	PFE-04	12019
(D-14-14)29aaa	COT C-3	YE-822	MYC-694	PFE-05	12020
(D-14-14)20bab	COT B-78	YE-823	MYC-695	PFE-06	12021
(D-14-14)20aca	COT B-19	YE-824	MYC-696	PFE-07	12022

SOIL SAMPLE LOCATION NUMBERS

ADEQ SAMPLE #	CLP ORGANICS #	CLP METALS #	LOCATION
1	YE-811	MYC-683	diversion gate
2	YE-812	MYC-684	ditch
3	YE-813	MYC-685	ditch (duplicate)
4	YE-814	MYC-686	impoundment
5	YE-815	MYC-687	Railroad Wash
6	YE-816	MYC-688	background
7	YE-817	MYC-689	waste pile

ANALYTICAL RESULTS
TABLE 4

Analysis Type: Water for VOA

Case No.: 10350/4111Y Memo #1

Site: Pacific Fruit Express

Lab.: Versar

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: October 12, 1988

Concentration in ug/L

Sample Location	D-14-14-20dac2			D-14-14-20dac3			D-14-14-01aaa			D-14-14-18dcb			D-14-14-29aaa			D-14-14-20bab			D-14-14-20aca		
Sample I.D.	YE818 D1			YE819 D1			YE820 FB			YE821			YE822			YE823			YE824		
Compound	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Chloromethane	2 U			2 U			0.5	J	a	2 U			2 U			2 U			2 U		
Vinyl chloride	2 U			2 U			0.3	J	a	2 U			2 U			2 U			2 U		
Methylene chloride	0.4 U	J	ad	0.3 U	J	ad	47			1 U			1 U			1 U			1 U		
Acetone	6.2 U	J	d	2.9 U	J	d	7.7			12 U	J	d	12 U	J	d	3.5 U	J	d	4.0 U	J	d
Chloroform	1 U			1 U			0.4	J	a	1 U			1 U			1 U			1 U		
2-Butanone	2 U	J	b	2 U	J	b	2.3	J	b	2 U	J	b	2 U	J	b	2 U	J	b	2 U	J	b
Toluene	1 U			1 U			0.9	J	a	1 U			1 U			1 U			1 U		
Trichlorofluoromethane	1 U			1 U			1.3			1 U			1 U			1 U			1 U		

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

Table 5.
Pacific Fruit Express
Water Quality Data- Inorganics

**** PARAMETERS ****	LABORATORY DETECTION LIMITS *	MYC-690	MYC-691	MYC-692	MYC-693	MYC-694	MYC-695	MYC-696
		(D-14-14)20dac2	(D-14-14)20dac2	Field	(D-14-14)18dcb	(D-14-14)29aaa	(D-14-14)20bab	(D-14-14)20aca
		PFE	PFC	Blank	Ka111	COT	COT	COT
			Duplicate			C-3	B-78	B-19
Date collected		09/14/88	09/14/88	09/15/88	09/14/88	09/15/88	09/15/88	09/15/88
* CATION/ANION *								
TDS @ 180°C	10.000	371	366	21	362	119	314	328
Calcium	1.000	54.3	54.9	0.27	48.0	40.0	38.5	46.8
Magnesium	1.000	7.66	7.63	0.14	6.72	4.75	3.67	5.95
Sodium	5.000	49.9	48.9	0.40	54.4	54.2	55.0	48.4
Potassium	0.500	2.3	2.1	0.35	1.93	2.05	2.03	2.30
Chloride	1.000	19.2	19.8	2.3	20.1	12.4	10.8	11.5
Fluoride	0.200	0.26	0.26	N	0.34	0.30	0.29	0.22
Alkalinity (total)	2.000	141	140	N	140	132	136	138
Sulfate	10.000	118	158	N	123	133	88.6	108
Nitrates N	0.100	0.83	0.82	N	0.93	0.60	0.56	0.65
Total Hardness	10.000	169	169	N	147	119	108	139
pH		7.84	7.82	3.81	7.99	7.94	8.03	7.94
* METALS *								
	mg/l							
Arsenic	0.020	0.01	0.01	N	0.01	0.01	0.01	0.001
Chromium (total)	0.010	N	N	N	N	N	N	N
Cadmium	0.001	N	N	N	N	N	N	N
Copper	0.010	0.08	0.03	0.01	0.01	0.005	0.01	0.02
Iron	0.100	0.67	0.41	0.22	0.07	0.4	0.05	0.35
Lead	0.020	0.01	0.01	N	N	N	N	0.004
Manganese	0.050	0.002	0.002	0.001	0.001	N	N	0.01
Mercury	0.005	N	N	N	0.002	N	N	N
Selenium	0.005	N	N	N	N	N	N	N
Silver	0.001	N	N	N	N	N	N	N
Zinc	0.050	0.02	N	N	N	N	0.03	0.02
Barium	0.100	0.06	0.06	0.12	0.06	0.06	0.07	0.06

"ND" - not detected in sample

"B" - detected in field blank

"**" - concentration exceeds MCL or SMCL.

The laboratory results are given in Tables 4 and 5. No VOCs or semi-VOCs were detected in the groundwater samples at or above the laboratory detection limits. The primary drinking water standards were not exceeded in the samples submitted for inorganic analysis.

Elevated levels of iron were detected in water samples obtained from two wells, the PFE on-site well, (D-14-14)20dac, and COT B-19, (D-14-14)20aca. Iron was detected at 671 and 347 ug/l respectively. The EPA Secondary Maximum Contaminant level for total iron is 300 ug/l.

The water samples were collected from relatively deep wells, therefore they may not provide a totally representative portrayal of the water quality in the upper portion of the aquifer under PFE.

4.2 Soil Samples

Soil samples were taken at the PFE facility on September 14, 1988. The samples were analyzed for VOC, semi-VOC, and metals. The results of analysis are listed in Tables 6, 7 and 8.

Soil samples were taken at six locations in and around the surface impoundment on the PFE facility. An additional soil sample duplicate was taken for a total of seven samples submitted for analysis.

The soil samples were obtained using a hand auger (a stainless steel Iwan type auger). The samples were then placed in sample jars supplied by the CLP program. The auger was decontaminated between sample sites.

The seven soil samples were taken in the surface impoundment area at the following locations, which are illustrated on Figure 5:

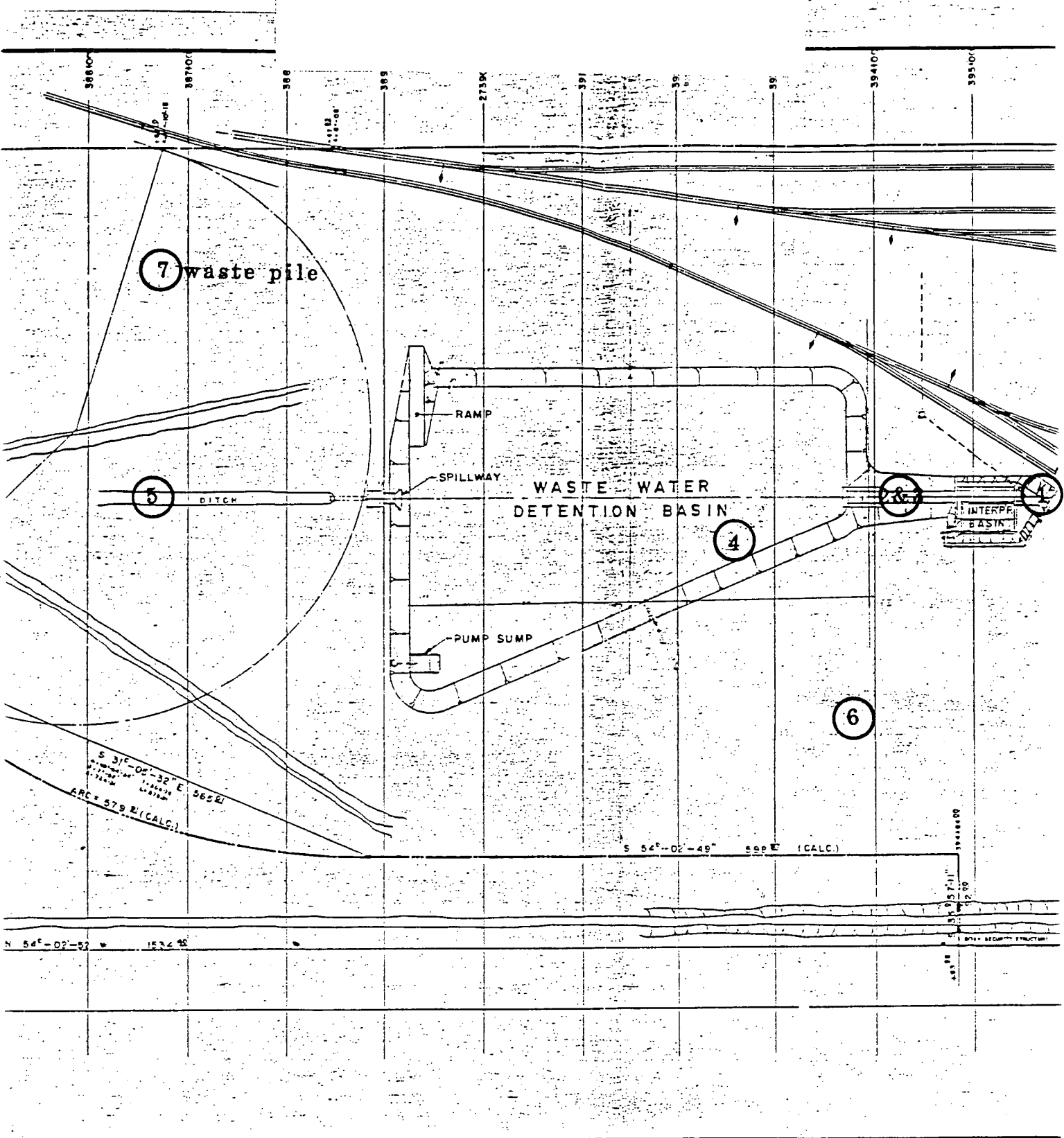
(1) Upstream of the diversion gate - Due to the presence of a concrete liner, the sample was obtained at a depth of 0.5 feet below land surface in the soil above the concrete liner. The soil sample appeared stained and was sandy in texture.

(2)(3) The ditch connecting the diversion gate and belt skimmer to the surface impoundment. Due to the presence of a concrete liner, the sample was obtained at a depth of 0.8 feet below land surface in the soil above the concrete liner. The soil sample appeared stained. The (3) sample was a duplicate and was obtained by mixing the soil and filling both sample jars from the mixture.

(4) Impoundment - The sample was collected on the western edge of the pond instead of the original sample location in the middle of the pond. This was due to the high level of water in the pond. The sample was obtained at a depth of one foot. The soil sample did not appear to be stained, however, the vegetation was stressed. The pond liner was not encountered.

(5) Railroad Wash, approximately 50 feet below impoundment spillway - The sample was obtained from a depth of 0.8 feet below land surface; a deeper sample was unobtainable due to auger refusal. The soil did not appear stained.

FIGURE 5: Soil Sample location



(6) Background sample - This sample was obtained in the desert area west of the impoundment to provide background data. The sample was taken at a depth of 1.0 feet below land surface. The sample did not appear to be stained.

(7) Waste pile north of surface impoundment - This sample location was originally planned to be in Railroad Wash. However, due to the presence of a large pile of stained soil, the decision was made in the field to obtain a sample of the stained soil. A composite sample was taken from several areas of the pile.

The seven soil samples were submitted to EPA's Contract Lab Program (CLP) laboratory for analysis for VOC using EPA Standard Method 8240; semi-VOC using EPA Standard Method 8270; and metals using EPA Standard Methods.

There are no maximum contaminant levels established for soils by EPA, therefore the background sample will be used as a basis for comparison on this report.

Analysis of the soil samples collected at PFE detected levels of the following VOCs at above the concentrations found in the background soil sample: carbon disulfide, 1,1-Dichloroethane, 1,1-trichloroethane, tetrachloroethene, toluene, ethylenbenzene, styrene, and total xylenes. See Table 6 for analytical results.

Carbon disulfide - this compound was not detected in the background soil sample. Soil sample number 1 contained 0.9 ug/kg. This sample was taken at the diversion gate.

1,1-dichloroethane - this compound was not detected in the background soil sample. Soil sample number 1 contained 5 ug/kg.

1,1,1-trichloroethane - this compound was not detected in the background soil sample. Soil sample number 1 contained 2 ug/kg.

tetrachloroethene - this compound was not detected in the background soil sample. Soil sample number 1 contained 2 ug/kg.

toluene - the analysis of the background sample detected 14 ug/kg of toluene in the soil. Soil samples number 1, number 5, and number 7 contained 7, 53 and 230 ug/kg of toluene, respectively.

Ethylbenzene and styrene - these compounds were not detected in the background soil sample. Soil sample number 1 contained 3 ug/kg of ethylbenzene and 7 ug/kg of styrene.

total xylenes - this compound was not detected in the background soil sample. Soil samples number 1 and number 7 contained 4 and 16 ug/kg of xylene respectively.

ANALYTICAL RESULTS

TABLE 6

Case No.: 10350/4111Y Memo #3
 Site: Pacific Fruit Express
 Lab.: Acurex
 Reviewer: Santiago Lee,
 ESAT/ICF Technology, Inc.
 Date: December 14, 1988

Analysis Type: Soil Samples for
 RAS VOA and BNA

Concentration in ug/Kg

Sample Location: Sample I.D.	YE811			YE812 D1			YE813 D1			YE814			YE815			YE816			YE817		
Compound	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
VOLATILES																					
Methylene Chloride	6 U J		b	6 U			6 U			7 U J		b	7			6 U			5 U		
Acetone	33 U J		bd	95 U J		bd	34 U J		bd	23 U J		bd	11 U J		d	21 U J		bd	26 U J		bd
Carbon disulfide	0.9	J	a	6 U			6 U			7 U			5 U			6 U			5 U		
1,1-Dichloroethane	5	J	a	6 U			6 U			7 U			5 U			6 U			5 U		
1,1,1-Trichloroethane	2	J	a	6 U			6 U			7 U			5 U			6 U			5 U		
Tetrachloroethene	2	J	a	6 U			6 U			7 U			5 U			6 U			5 U		
Toluene	7			6 U J		b	6 U J		b	7 U J		b	53			14			230	J	c
Ethylbenzene	3	J	a	6 U			6 U			7 U			5 U			6 U			5 U		
Styrene	7			6 U			6 U			7 U			5 U			6 U			5 U		
Total Xylenes	4	J	a	6 U			6 U			7 U			5 U			6 U			16		
SEMI-VOLATILES																					
N-Nitrosodiphenylamine	380 U J		b	410 U J		b	410 U			450 U J		b	350 U J		b	390 U			340 U		
Phenanthrene	380 U			410 U			410 U			450 U			350 U			390 U			230	J	a
Pyrene	380 U			410 U			410 U			450 U			350 U			390 U			67	J	a
Percent Solids	87%			82%			81%			74%			93%			84%			98%		

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

NA - Not Analyzed

TABLE 7
Detected Tentatively Identified Compounds (TICs)

CASE No. : 10350/4111Y Memo #3
 SITE : Pacific Fruit Express
 LAB : Acurex
 REVIEWER : Santiago Lee,
 ESAT/ICF Technology, Inc.
 DATE : December 15, 1988

<u>Sample Number</u>	<u>Compound</u>	<u>Fraction</u>	<u>Retention Tim. min.</u>	<u>Concentration (ug/Kg)</u>	<u>Rating^a (Remarks)</u>
YE811	C ₉ H ₁₈ Hydrocarbon	VOA	14.57	40 J	B
	C ₁₀ H ₂₀ Hydrocarbon	VOA	15.43	67 J	B
	C ₄ -Cydohexane	VOA	16.18	48 J	B
	C ₁₀ H ₂₂ Hydrocarbon	VOA	16.55	76 J	B
	Unknown Hydrocarbon	VOA	16.98	43 J	
	C ₁₁ H ₂₄ Hydrocarbon	VOA	17.23	60 J	B
	Unknown Hydrocarbon	VOA	17.70	81 J	
	Decahydronaphthalene	VOA	18.47	47 J	A
	C ₁₁ H ₂₄ Hydrocarbon	VOA	19.12	43 J	B
	C ₁₁ H ₂₄ Hydrocarbon	VOA	19.40	140 J	B
	Alkyl Phenol	BNA	16.15	420 J	B
	Alkyl Phenol	BNA	16.50	270 J	B
YE812 D1	Unknown Hydrocarbon	VOA	14.83	23 J	
	Unknown Hydrocarbon	VOA	16.38	20 J	
	C ₁₀ H ₂₂ Hydrocarbon	VOA	16.53	12 J	B
	Unknown Hydrocarbon	VOA	17.23	14 J	
	C ₁₁ H ₂₂ Hydrocarbon	VOA	17.57	12 J	B
	Unknown Hydrocarbon	VOA	17.72	14 J	
	C ₁₁ H ₂₂ Hydrocarbon	VOA	18.08	16 J	B
	Decahydronaphthalene	VOA	18.47	15 J	A
	C ₁₁ H ₂₀ Hydrocarbon	VOA	19.05	23 J	B
	None Found	BNA			
YE813 D1	Unknown	VOA	17.55	6 J	
	Unknown Hydrocarbon	BNA	15.98	300 J	
	Unknown Hydrocarbon	BNA	16.90	210 J	
	Unknown	BNA	23.98	300 J	
YE814	Trichlorotrifluoro-ethane	VOA	3.27	15 J	A
	C ₁₀ H ₁₆ Hydrocarbon	VOA	17.68	7 J	B
	None Found	BNA			
YE815	C ₉ H ₂₀ Hydrocarbon	VOA	13.47	11 J	B
	Unknown Hydrocarbon	VOA	14.53	12 J	
	C ₁₀ H ₂₀ Hydrocarbon	VOA	15.38	17 J	B
	C ₃ -Benzene	VOA	16.20	14 J	A

TABLE 7
(continued)

<u>Sample Number</u>	<u>Compound</u>	<u>Fraction</u>	<u>Retention Tim. min.</u>	<u>Concentration (ug/Kg)</u>	<u>Rating^a (Remarks)</u>
YE815	C ₁₀ H ₂₂ Hydrocarbon	VOA	16.50	35 J	B
	Unknown Hydrocarbon	VOA	17.18	15 J	
	C ₄ -Cyclohexane	VOA	17.60	8 J	B
	Unknown Hydrocarbon	VOA	17.68	15 J	
	Unknown Hydrocarbon	VOA	18.37	8 J	
	None Found	BNA			
YE816	Unknown	VOA	14.63	8 J	
	None Found	BNA			
YE817	Unknown Hydrocarbon	VOA	14.53	660 J	
	C ₁₀ H ₂₀ Hydrocarbon	VOA	15.38	790 J	B
	C ₃ -Benzene	VOA	16.20	800 J	A
	C ₁₀ H ₂₂ Hydrocarbon	VOA	16.52	1700 J	B
	C ₃ -Benzene	VOA	17.02	500 J	A
	Unknown Hydrocarbon	VOA	17.18	920 J	
	Unknown Hydrocarbon	VOA	17.68	550 J	
	Unknown Hydrocarbon	VOA	18.57	750 J	
	C ₁₁ H ₂₂ Hydrocarbon	VOA	19.08	970 J	B
	C ₁₁ H ₂₄ Hydrocarbon	VOA	19.38	2400 J	B
	C ₁₃ H ₂₈ Hydrocarbon	BNA	11.87	2100 J	B
	C ₁₄ H ₃₀ Hydrocarbon	BNA	13.00	4000 J	B
	Dimethyl Naphthalene	BNA	13.32	1800 J	A
	Dimethyl Naphthalene	BNA	13.53	1600 J	A
	Unknown Hydrocarbon	BNA	13.65	620 J	
	Unknown Hydrocarbon	BNA	14.03	1300 J	
	Trimethyl Naphthalene	BNA	14.66	960 J	A
	Unknown Hydrocarbon	BNA	15.02	1500 J	
	Unknown Hydrocarbon	BNA	15.48	1200 J	
	Unknown	BNA	15.62	420 J	
	Unknown Hydrocarbon	BNA	15.95	1400 J	
	Unknown Hydrocarbon	BNA	16.93	720 J	
	Unknown Hydrocarbon	BNA	17.68	1000 J	
	Unknown Hydrocarbon	BNA	18.48	700 J	
	Unknown	BNA	19.05	390 J	
	Unknown Hydrocarbon	BNA	19.25	460 J	
	Unknown	BNA	23.90	1000 J	
	Unknown Hydrocarbon	BNA	25.17	1000 J	
	Unknown	BNA	26.48	970 J	
	Unknown	BNA	28.73	1100 J	

J (estimated): Value is considered usable for limited purposes.

^a Rating codes--probability that identification is correct:

A = High B = Moderate C = Low

Semi-volatile compounds were detected in six of the seven samples submitted for analysis, with no compounds being detected in the background sample. The six samples contained numerous hydrocarbon compounds, phenols, naphthalenes and unidentified compounds at concentrations ranging from 6 ug/kg to 4000 ug/kg. See Table 6 for analytical results. In addition, trichlorotrifluorethane was detected at a concentration of 15 ug/kg in the pond sample (number 4). This compound is also known as Freon 113, a refrigerant that PFE uses to recharge cooling systems. PFE estimates they use 400 gallons per year of this compound. A benzene compound (C_6H_6 , benzene) was detected at a concentration of 14 ug/kg in sample number 5, which was taken in Railroad Wash downstream from the impoundment. See Table 7 for analytical results.

Elevated levels of barium, chromium, copper, lead, nickel, and zinc were detected in soil samples submitted for analysis. See Table 8 for complete analytical results.

Barium - The analysis of the background sample detected 72.6 ug/kg of barium in the soil. Soil samples number 2 and number 3 (duplicate samples taken in the ditch upstream from the surface impoundment) contained 321 and 604 ug/kg of barium respectively.

Chromium - A background level of 11.3 ug/kg was detected in sample number 6. Soil samples numbers 1, 2, and 3 contained 78.6, 208, and 197 ug/kg of chromium, respectively.

Copper - A background level of 17.1 ug/kg was detected in sample number 6. Soil samples 1 through 5 and 7 contained the following concentration of copper: 125, 428, 533, 42, 33, and 77.7 ug/kg.

Lead - A background level of 24.5 ug/kg was detected in sample number 6. Soil samples 1 through 5 were analyzed and found to contain the following levels of lead: 354, 680, 858, 424, and 78 ug/kg.

Nickel - A background level of 9.2 ug/kg was detected in sample number 6. Soil samples 1 through 3 were analyzed and found to contain the following levels of nickel: 12.2, 18.3, and 21.4 ug/kg.

Zinc - A background level of 43.5 ug/kg was detected in sample number 6. Soil samples 1 through 5 were analyzed and found to contain the following levels of zinc: 633, 1380, 1610, 64.4, and 112 ug/kg.

Due to the volatile nature of organics, the optimum soil sampling depth is at a minimum one foot. With the exception of the background and impoundment samples, the samples were collected at depths less than one foot. The results of the organic analysis (especially VOC results) for the soil samples taken at PFE provide an indication of probable soil contamination by organic compounds at this site.

ANALYTICAL RESULTS

TABLE 8

Case No.: 10350/4111Y Memo #2

Analysis Type: Soil for RAS metals

Site: Pacific Fruit Express

Lab: Keystone

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: November 7, 1988

UNVALIDATED DATA

Concentration in mg/kg

Sample Location	MYC683			MYC684 D1			MYC685 D1			MYC686			MYC687			MYC688 BG			MYC689			Lab Blank		
Sample I.D.																								
Parameter	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Aluminum	1970			9210			10100			13400			11800			13800			1820			4.6 L		
Antimony	3.6 U			4.5 U			4.3 U			4.1 U			4.2 U			3.8 U			3.1 U			2.9 U		
Arsenic	11.2			11.1			21.3			4.5			4.0			3.1			2.5			0.72 U		
Barium	82.5			321			604			111			82.1			72.6			29.5 L			2.4 U		
Beryllium	0.40 L			0.87 L			0.97 L			1.2 L			1.0 L			0.96 L			0.34 L			0.080 L		
Cadmium	3.5			11.5			12.4			0.87 U			0.88 U			0.81 U			0.65 U			0.62 U		
Calcium	17700			35100			34600			64100			55100			4940			4110			67.9 L		
Chromium	78.6			208			197			11.7			18.9			11.3			2.4			0.68 U		
Cobalt	5.7			7.1 L			9.2 L			4.9 L			3.8 L			5.6 L			1.8 L			0.76 U		
Copper	125			428			533			42.3			33.1			17.1			77.7			0.58 U		
Iron	14300			17400			20400			11300			11000			13200			5740			7.0 L		
Lead	354			680			858			42.4			78.5			24.5			10.1			0.46 U		
Magnesium	1530			4750			4780			8100			5230			4440			913 L			5.7 U		
Manganese	144			227			265			184			166			253			78.7			0.12 U		
Mercury	0.14			0.32			0.58			0.14 U			0.14 U			0.13 U			0.10 U			0.10 U		
Nickel	12.2			18.3			21.4			6.9 L			8.0 L			9.2 L			3.2 L			2.8 U		
Potassium	417 L			2090			2310			2840			2900			3880			455 L			70.8 U		
Selenium	0.92 U			1.1 U			1.1 U			1.0 U			1.1 U			0.96 U			0.78 U			0.74 U		
Silver	0.67 L			0.83 U			0.79 U			0.76 U			0.77 U			0.70 U			0.57 U			0.54 U		
Sodium	342 L			554 L			598 L			381 L			300 L			303 L			461 L			182 L		
Thallium	0.45 U			0.56 U			0.53 U			0.50 U			0.51 U			0.47 U			0.38 U			0.36 U		
Vanadium	6.0 L			23.3			26			36.9			19.9			23.8			8.6 L			0.66 U		
Zinc	633			1380			1610			64.4			112			43.5			37.4			3.0 L		
Percent Solids	80.8			64.7			68.3			71.4			70.2			76.9			95.4			--		

Val-Validity Refer to Data Qualifiers in Table 18.

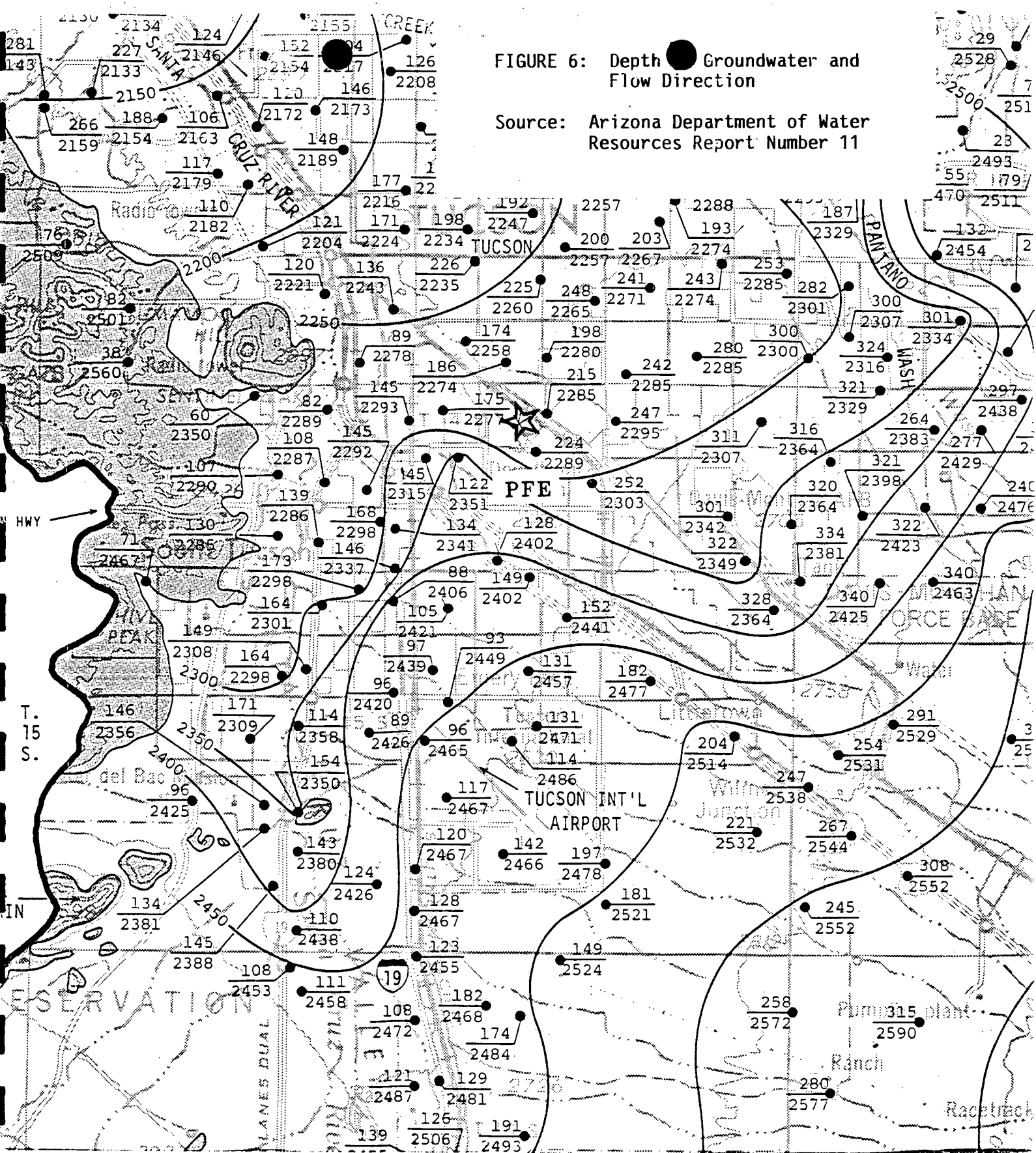
Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank; BG-Background

CRQL-Contract Required Quantitation Limit



The analysis of soil sample number five, which was collected in Railroad Wash, detected elevated levels of VOC's, semi-VOCs, and metals in the soil. This could indicate a break in the surface impoundment liner or a discharge of waste into the wash prior construction of the impoundment, (1977). The elevated levels of contaminants in the soil indicate that a potential for groundwater contamination at this facility exists given the permeability of the unsaturated zone.

5.0 HRS FACTORS

Observed Release

There has not been an observed release of contaminants to the groundwater at this facility. There is evidence to suggest that a release to the surface water may have occurred at this facility. There is no evidence to suggest that a release to the air may have occurred at this facility.

Potential for an Observed Release

Groundwater route characteristics that would influence this site's potential for an observed release and would increase the score of this site are permeability of the unsaturated zone, physical state of hazardous substances at the time of disposal, target population, and containment.

City of Tucson well B-78 [(D-14-14)20bab] was the only well in the immediate area around PFE to have a well drillers log on file. This well is located 0.4 mile north of PFE. The well was drilled and logged to a depth of 500 feet. The log describes the formation material for the length of the entire well as sand, gravel, and sandy gravel. The hydraulic conductivity of these sediments is estimated to be greater than 10^{-3} cm/sec. This high permeability enhances the potential for an observed release to groundwater. Well logs for wells located approximately one mile or greater from PFE indicate that some layers of fine sand, sandy clay, and clay do exist. There does not appear to be a continuous clay layer through the area.⁽¹³⁾

The physical state of the substances disposed of both historically and at the present time is liquid.

The target population for wells within a three mile radius of PFE is 395,635.

Contamination found in soil samples (as stated in Section 4.0 - Summary of Investigative Efforts) indicate a potential of groundwater contamination at this facility.

The potential for an observed release of contaminants to the surface water is present. The soil analysis, and the historical surface runoff practices indicate that a release to the surface water may have occurred, increasing the score and, therefore, the potential.

Contaminants were detected in a soil sample taken downstream from the surface impoundment in Railroad Wash. The following organics were detected: toluene, hydrocarbons, benzene, and cyclohexane. Metals detected in this sample that exceed the background sample include chromium, copper, lead, and zinc. These analyses indicate that a potential for an observed release to the surface water exists.

The surface impoundment currently on-site was reportedly constructed in 1977. This impoundment is equipped with a liner (as reported by PFE) and a spillway. The spillway discharges into Railroad Wash. PFE reports that the pond has never discharged into the wash.

PFE has not provided historical documentation regarding the disposal of the surface runoff and wastewater from the storm drain system prior to 1977. The undated photograph (Figure 3) of PFE documents a drainage (ditch or wash) that runs in a westerly direction through the current pond area. This drainage appears to connect the stormwater outlet to Railroad Wash. If stormwater, and wastewater were discharged into this ditch, the potential for an observed release to surface water is present.

Groundwater

The source of groundwater in the Tucson area is the valley-fill deposits of the Santa Cruz basin. The three sedimentary units are hydrologically interconnected and provide groundwater to this area. The upper unit, the Fort Lowell Formation is 250 to 360 feet thick and provides most of the groundwater that is withdrawn from the Tucson Basin. The three sedimentary units that compose the basin are considered to be the aquifer of concern. The depth to water under the PFE facility is approximately 200-220 feet below land surface. Within a three mile radius, the depth varies from 83 to 301 feet below land surface.

The net precipitation for November through April is calculated to be -16.43 inches.

Since 1977, the PFE has diverted surface water runoff, wastewater from the oil-water separator and wash-down water from surface intake drains into a surface impoundment (reported by PFE to be lined). Prior to 1977, PFE has not provided documentation of surface water disposal practices. An undated photograph of PFE shows a drainage that runs through the current pond area. This drainage appears to convey the PFE discharge into Railroad Wash. The concrete pad of the waste drum storage area is equipped with surface intake drains connecting to the drainage system and surface impoundment.

PFE has one underground storage tank used to store solvent. This tank was installed in 1957 and has never been tightness tested. In addition, PFE has three underground storage tanks currently used to store petroleum products.

PFE has not provided ADEQ with documentation regarding the historical chemical products used, quantities of waste produced, and the waste management and disposal practices used on site.

The EPA Hazard Ranking System waste characteristic values (toxicity/resistance) matrix for the compounds detected in the soil samples collected on site.

<u>Compounds</u>	<u>Matrix Value</u>
1,1-DCA	12
1,1,1-TCA	12
PCE	18
toluene	9
ethyle benzene	9
styrene	9
xylene	9
phenol	12
barium	18
chromium	18
copper	18
lead	18
nickel	18
zinc	18

The highest matrix value present in the soil at this facility is 18. This indicates that the compound is highly toxic to humans and is persistent in the environment (not easily biodegradable).

The calculation of hazardous waste quantity generated on the PFE facility is based on the once-through volume of the solvent underground storage tank and the volume of surface impoundment, and the approximate volume of the waste pile.

The volume of the surface impoundment is estimated to be 1,127,000 gallons. The volume of the solvent tank is reported to be 3,000 gallons. Total estimated liquid waste quantity is 1,130,000 gallons or 22,600 drums (50 gallon capacity). The approximate volume of the waste pile is calculated to be 667 cubic yards. The total waste volume (both liquid and solid) is equivalent to 22,768 drums with a 50 gallon capacity.

The target population for groundwater use in a three mile radius around PFE is 395,635. The City of Tucson relies on groundwater as its only source of water. The City of Tucson wells are blended to provided the cities water needs. The nearest public supply well is a City of Tucson well #B-19 (D-14-14)20acd, which is located $\frac{1}{4}$ mile northeast of PFE. The nearest drinking water well is a PFE owned well that is located on-site. This well, (D-14-14)20dac, is used for industrial and drinking water purposes.

Surface Water

Surface water run-off drains from the southeast to the northwest, on the PFE facility into Railroad Wash. Railroad Wash drains north into Arroyo Chico about $\frac{1}{2}$ -mile from the facility. In turn, the Arroyo Chico drains into the Santa Cruz River about three miles further. The Santa Cruz River flows northward and is located three miles west of PFE. The Santa Cruz River channel is normally dry with flows occurring in response to direct precipitation. There are no identified water uses of the Santa Cruz River, however, these flows are a source of recharge to the groundwater basin. The Railroad Wash and Arroyo Chico are classified as intermittent drainage channels with no identified flows or water.

In addition to the naturally occurring drainage patterns in the above paragraph, surface water and wastewater run-off are diverted through a storm drain system. Since 1977, this surface water has been drained into a surface impoundment. The spillway from the surface impoundment could discharge flow directly into Railroad Wash. Prior to 1977, it appears that the storm drain system was diverted directly into Railroad Wash via a ditch.

There are no known wetland, critical habitats, or sensitive environments within a three mile radius of PFE.

Fire and Explosion

No documented threat of fire or explosion exists at this site.

Direct Contact

The hazardous materials used and the waste generated in drums on site is stored in a locked storage area with limited access. The surface impoundment is enclosed with a chain link locked fence. The stained soil waste pile is located within the fenced property line.

The PFE facility is fenced, and motor vehicle access to the site is restricted.

This site appears to be eligible for the NPL based on a probable score greater than 28.5. Although an observed release of contaminants into the groundwater has not been documented, several factors indicate a high potential for documenting such a release in the future. These factors include:

- high permeability of the unsaturated zone;
- elevated levels of contaminants detected in soil samples;

- water samples collected for this SI were obtained from relatively deep wells, which do not provide an accurate analysis of water quality near the tope of the aquifer, where the contaminants would be expected to be most concentrated.
- high groundwater target population - The City of Tucson relies totally on groundwater and many municipal supply wells are located within a three mile radius;
- high estimated waste quantity value;
- high (18) waste toxicity value.

6.0 RECOMMENDATIONS AND CONCLUSIONS

6.1 Further Action under CERCLA

This facility is recommended for a Listing Site Inspection (LSI) under CERCLA since it appears PFE could achieve a score high enough for inclusion on the NPL. Additional work at PFE should include, but not limited to:

1. Soil gas analysis survey over the entire PFE site. This type of sampling could locate possible VOC disposal, which could be utilized to determine the location of soil sampling and monitor well installation.
2. Soil sampling beneath the surface impoundment, underground solvent tank, and Railroad Wash. The samples should be collected at depths greater than one foot.
3. Drilling and installation of monitor well(s) in and around PFE for the purpose of:
 - a. establishing the site hydrogeology, including gradient and direction of groundwater flow and lithological characteristics of the groundwater;
 - b. obtaining groundwater samples from the upper zone of the potential contamination in the upper part of the aquifer.
4. Evaluate the status of the second (inoperable) well on the PFE facility for the possibility of sampling. The use of a video camera to log the well and locate the perforations may be advantageous.

6.2 Further Actions Under State Authority

The various operational activities at PFE fall under the authority of several programs administered by the ADEQ. These programs include: RCRA, UST, and State Groundwater Permit Program. The PFE facility will be referred to the above programs for review where appropriate.

Further action performed at ADEQ, within ADEQ RCRA, UST, and/or Groundwater Permit Program.

SI-19

*Anita Parker
3/27/90*

7.0 REFERENCES

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- ²Site Inspection interview with Pacific Fruit Express on August 2, 1988, by Judy Heywood, Arizona Department of Environmental Quality.
- ³Arizona Statistical Review - 43rd Annual Edition. Valley National Bank of Arizona. September, 1987.
- ⁴Climatic Atlas of the United States, U. S. Department of Commerce, Environmental Science Services Administration, Environmental Data Service, June, 1968.
- ⁵Rainfall Frequency Atlas of the United States, Technical Paper No. 40, U. S. Government Printing Office, Washington, D.C., 1983.
- ⁶Heywood, Judy, Arizona Department of Environmental Quality, field notes and photographs from Site Inspection of Pacific Fruit Express facility, August 2, 1988.
- ⁷Anderson, S.R., 1987, Cenozoic Stratigraphy and Geologic History of the Tucson Basin, Pima County, Arizona: U.S.G.S. Water Resources Investigations Report 87-4190, p19.
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- ⁹Richardson, M.L., and Miller, M.L., Report and Interpretations for the General Soil Map Pima County, Arizona. U. S. Department of Agriculture Soil Conservation Service, July, 1973.
- ¹⁰United States Geological Survey, Tucson, Arizona, Quadrangle, 7.5 minute series, 1983.
- ¹¹Babcock, J.A., Cameron, J.A., and Heidenreich, L.K., Annual Static Water Level Basic Data Report, Tucson Basin and Avra Valley Pima County, Arizona, City of Tucson, Tucson Water Planning Division, July, 1986.

7.0 REFERENCES (cont'd)

- ¹²Graf, Charles, G., VOC's in Arizona's Groundwater: A Status Report. Proceeding of the Conference on Southwestern Groundwater Issues, October 20-22, 1986, Tempe, Arizona. NWWA, Dublin, Ohio, 1986, pp 269-287.
- ¹³Davis, S.N., Porosity and Permeability of Nature Materials in Flow-through Porous Media, R.J.M. DeWest ed., Academic Press, New York, 1969.
- ¹⁴Arizona Department of Water Resources, Well Inventory Merge Database, January 14, 1988.

APPENDIX A

Groundwater and Soil Sampling Results



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street
San Francisco, Ca. 94105

OCT 13 1988

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Kent M. Kitchingman, Chief *David M. Kitchingman for*
Quality Assurance Management Section
Environmental Services Branch, OPM (P-3-2)

TO: Tom Mix, Chief
Site Evaluation Section
Field Operations Branch, TWPD (T-4-7)

Attached are comments resulting from Region 9 review of the following analytical data:

SITE: Pacific Fruit Express
EPA SITE ID NO.: AZD045804325
CASE/SAS NO.: 10350/4111Y #1

LABORATORY: VERSAR
ANALYSIS: Organics (VOAs only)

SAMPLE NO.: YE818 to YE824
COLLECTION DATE: 9/14 & 15/88

REVIEWER: Greg Nicoll (ICF Technology Incorporated)
TELEPHONE NUMBER: (415) 957-0110

If there are any questions, please contact the reviewer.

Attachment

cc: Carla Dempsey, QA Officer, EPA-HQ (WH-548A)
Jimmie D. Petty, EMSL-LV, QAD
Chuck Sands, DPO Region III X FYI For Action



ICF TECHNOLOGY INCORPORATED

QUALITY ASSURANCE REPORT

Site: Pacific Fruit Express

EPA Site I.D. Number: AZD045804325

TID Number: 9A-8810-026

Case Number: 10350/4111Y Memo #1

Laboratory: Versar

Matrix/Analyses: 7 low waters for VOA

Sample Number: YE818 through YE824

Collection Date: September 14 and 15, 1988

Date Data Package Received by ESAT: October 7, 1988

Data Package Received From: ESB, EPA Region IX

Follow-Up Data Request Received On:

Evaluated By: Greg Nicoll
ESAT/ICF Technology, Inc.

Data Review Completed On: October 12, 1988

Approved By: *Symala Jefferies*

Date Data Review Report Forward to ESB: October 12, 1988

EPA Concurrence: *Ramona Vinagre*
10/13/88

Data Validation Report

Case No.: 10350/4111Y Memo #1

7 low waters for VOA

Site: Pacific Fruit Express

Laboratory: Versar

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date of this report: October 12, 1988

I. Introduction

Seven low water samples were submitted to the laboratory for VOA analyses on September 17, 1988. All samples were analyzed by the low level procedure with a 25 mL purge volume. In addition to RAS VOA HSL compounds, trichlorofluoromethane and dichlorodifluoromethane were included in the calibration standards and determined in the samples.

Sample number YE820 is a field blank. Sample numbers YE818 and YE819 are field duplicates. Field duplicate pairs have D# suffix (D1 for the first field pair, D2 for the second field pair) in Table 1A.

The analytical results with qualifications are listed in Table 1A. No tentatively identified compounds were found in the samples. The quantitation limits of target compound list (TCL) compounds are presented in Table 2. Table 3 lists the values for the compounds that do not meet criteria in the initial and continuing calibrations.

This report was prepared in accordance with EPA document "Laboratory Data Validation Functional Guidelines For Evaluating Organic Analyses", April 11, 1985.

II. Validity and Comments

- A. The following results are considered usable for limited purposes due to quantitation problems. The results are considered as estimates and are flagged "J" in Table 1A.

Chloromethane in sample number YE820
Vinyl chloride in sample number YE820
Methylene chloride in sample numbers YE818 and YE819
Chloroform in sample number YE820
Toluene in sample number YE820

Results above the instrument detection limit for waters but below the contract required quantitation limit are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- B. The following results are considered usable for limited purposes due to calibration problems. The results are considered as estimates and are flagged "J" in Tables 1A and 2.

2-Butanone in all samples and laboratory blanks
2-Chloroethylvinylether in all samples and laboratory blanks
2-Hexanone in sample numbers YE821 through YE824 and laboratory blank 2

The average relative response factor of the initial calibration did not meet criteria (≥ 0.05) as shown in Table 3.

- C. The following results are considered usable for limited purposes due to calibration problems. The results are considered as estimates and are flagged "J" in Table 2.

Dichlorodifluoromethane in all samples and laboratory blanks

The percent relative standard deviation of initial calibration response factors for dichlorodifluoromethane did not meet criteria ($\leq 25\%$) as shown in Table 3.

- D. The following results are considered usable for limited purposes due to contamination problems. The results are considered as estimates and are flagged "J" in Table 1A.

Methylene chloride in sample numbers YE818 and YE819
Acetone in sample numbers YE818, YE819, and YE821 through YE824

The above results were found to be less than ten times the levels found in the field blank. The detection limits have been adjusted to the levels found in the samples.

- E. The 40 CFR 136 holding times were not exceeded for any sample.
- F. Eight compounds were found in the field blank (YE820). The level of methylene chloride was high enough in the field blank to require an additional diluted analysis of the field blank.
- G. All other results are considered valid and usable for all purposes. All QC parameters, other than those discussed here, have been met.

ANALYTICAL RESULTS

Page 1 of 2

TABLE 1A*

Case No.: 10350/4111Y Memo #1

Site: Pacific Fruit Express

Lab.: Versar

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: October 12, 1988

Analysis Type: Water for VOA

Concentration in ug/L

Sample Location	D-14-14-20dac2			D-14-14-20dac3			D-14-14-01aaa			D-14-14-18dcb			D-14-14-29aaa			D-14-14-20bab			D-14-14-20aca		
Sample I.D.	YE818 D1			YE819 D1			YE820 FB			YE821			YE822			YE823			YE824		
Compound	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Chloromethane	2 U			2 U			0.5	J	a	2 U			2 U			2 U			2 U		
Vinyl chloride	2 U			2 U			0.3	J	a	2 U			2 U			2 U			2 U		
Methylene chloride	0.4 U	J	ad	0.3 U	J	ad	47			1 U			1 U			1 U			1 U		
Acetone	6.2 U	J	d	2.9 U	J	d	7.7			12 U	J	d	12 U	J	d	3.5 U	J	d	4.0 U	J	d
Chloroform	1 U			1 U			0.4	J	a	1 U			1 U			1 U			1 U		
2-Butanone	2 U	J	b	2 U	J	b	2.3	J	b	2 U	J	b	2 U	J	b	2 U	J	b	2 U	J	b
Toluene	1 U			1 U			0.9	J	a	1 U			1 U			1 U			1 U		
Trichlorofluoromethane	1 U			1 U			1.3			1 U			1 U			1 U			1 U		

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

ANALYTICAL RESULTS

TABLE 1A*

Page 2 of 2

Case No.: 10350/4111Y Memo #1

Site: Pacific Fruit Express

Lab.: Versar

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: October 12, 1988

Analysis Type: Water for VOA

Concentration in ug/L

Sample Location Sample I.D.	Lab Blank 1			Lab Blank 2														
Compound	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Chloromethane	2 U			2 U														
Vinyl chloride	2 U			2 U														
Methylene chloride	1 U			1 U														
Acetone	2 U			3.0														
Chloroform	1 U			1 U														
2-Butanone	2 U	J	b	2 U	J	b												
Toluene	1 U			1 U														
Trichlorofluoromethane	1 U			1 U														

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

TABLE 1B
DATA QUALIFIERS

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

- U Indicates that the compound is not detected above the concentration listed.
- J Results are estimated and the data are valid for limited purposes. The results are qualitatively acceptable.
- N Presumptive evidence of the presence of the material. The compound identification is considered to be tentative. The data are usable for limited purposes.
- R Results are rejected and data are invalid for all purposes.

Method blanks and associated samples:

Lab Blank 1: YE818 through YE820

Lab Blank 2: YE820 for methylene chloride and acetone only, and YE821 through YE824

Field blanks and associated samples:

YE820: YE818 through YE824

TABLE 2
CONTRACT REQUIRED QUANTITATION LIMITS

Case No. : 10350/4111Y Memo #1
Site : Pacific Fruit Express
Lab : Versar
Reviewer : G. Nicoll, ESAT/ICF Technology, Inc.
Date : October 12, 1988

<u>Volatile Compounds</u>	<u>Units, ug/L</u>
Chloromethane	2
Bromomethane	2
Vinyl Chloride	2
Chloroethane	2
Methylene Chloride	1
Acetone	2
Carbon Disulfide	1
1,1-Dichloroethene	1
1,1-Dichloroethane	1
1,2-Dichloroethene (total)	1
Chloroform	1
1,2-Dichloroethane	1
2-Butanone	1
1,1,1-Trichloroethane	2 J b
Carbon Tetrachloride	1
Vinyl Acetate	1
Bromodichloromethane	2
1,1,2,2-Tetrachloroethane	1
1,2-Dichloropropane	1
trans-1,3-Dichloropropene	1
Trichloroethene	1
Dibromochloromethane	1
1,1,2-Trichloroethane	1
Benzene	1
cis-1,3-Dichloropropene	1
2-Chloroethylvinylether	1
Bromoform	2 J b
2-Hexanone	1
4-Methyl-2-Pentanone	2 J b
Tetrachloroethene	2
Toluene	1
Chlorobenzene	1
Ethylbenzene	1
Styrene	1
Total Xylenes	1
Trichlorofluoromethane	1
Dichlorodifluoromethane	1
	1 J c

J(estimated): Value is considered usable for limited purposes. See comment b and c in the narrative.

TABLE 3
VOLATILES: INITIAL AND CONTINUING CALIBRATION

Case No.: 10350/4111Y Memo #1
 Site: Pacific Fruit Express
 Lab.: Versar
 Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.
 Date: October 12, 1988

Analysis Date:	09/21/88	09/22/88
Associated Samples:	YE818, YE819, YE820, and Lab Blank 1	YE821 through YE824 and Lab Blank 2

Calibration Type:	Initial	Initial
Criteria:	RRF \geq 0.05 %RSD \leq 30	RRF \geq 0.05 %RSD \leq 30

Compound:

2-Butanone	0.015	--	0.014	--
2-Chloroethylvinylether	0.049	--	0.047	--
2-Hexanone	--	--	0.040	--
Dichlorodifluoromethane	--	31	--	34



ARIZONA DEPARTMENT OF HEALTH SERVICES

ROSE MOFFORD, GOVERNOR
TED WILLIAMS, DIRECTOR

Division of State Laboratory Services
1520 West Adams Street
(602) 255-1188

November 4, 1988

Judy Heywood
Department of
Environmental Quality
2005 N. Central Ave.
Phoenix, Az. 85004

Dear Judy,

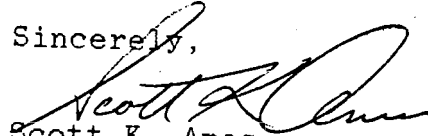
The following compounds comprise the Semi-Volatiles section of the current EPA Hazardous Substance List (HSL). All are searched for in a GC/MS scan for semi-volatiles (also known as BN/A's).

In the accompanying sample report, only the compounds which were detected in the sample are reported and quantitated. The rest of the compounds in the HSL were searched for but were not detected.

To be consistent with the STORET data entry format, compounds which are identified as being present but at levels below the EPA-mandated quantitation limit are reported with a J preceded by the amount detected. (E.g. diethyl phthalate found at 3 ug/liter is reported as 3J.)

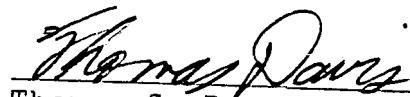
Compounds present at or above the quantitation limit but also present in the laboratory blank are reported with a B following the value detected.

Sincerely,


Scott K. Ames

GC/MS-VOA Section Manager

Approved


Thomas S. Davis, Manager
Office of Environmental &
Analytical Chemistry

SKA/ajw
attachments

The Department of Health Services is An Equal Opportunity Affirmative Action Employer.

State Health Building

1740 West Adams Street

Phoenix, Arizona 85007

CUSTOMARY
QUANTITATION LIMIT FOR WATER

Semi-Volatile Compounds	Micrograms Per Liter

Phenol	10
bis(2-Chloroethyl)Ether	10
2-Chlorophenol	10
1,3-Dichlorobenzene	10
1,4-Dichlorobenzene	10
Benzyl Alcohol	10
1,2-Dichlorobenzene	10
2-Methylphenol	10
bis(2-Chloroisopropyl)Ether	10
4-Methylphenol	10
N-Nitrosodipropylamine	10
Hexachloroethane	10
Nitrobenzene	10
Isophorone	10
2-Nitrophenol	10
2,4-Dimethylphenol	10
Benzoic Acid	50
bis(2-Chloroethoxy)Methane	10

Semi-Volatile Compounds	Micrograms Per Liter

2,4-Dichlorophenol	10
1,2,4-Trichlorobenzene	10
Naphthalene	10
4-Chloroaniline	10
Hexachlorobutadiene	10
4-Chloro-3-Methylphenol	10
2-Methylnaphthalene	10
Hexachlorocyclopentadiene	10
2,4,6-Trichlorophenol	10
2,4,5-Trichlorophenol	50
2-Chloronaphthalene	10
2-Nitroaniline	50
Dimethyl Phthalate	10
Acenaphthylene	10
3-Nitroaniline	50
Acenaphthene	10
2,4-Dinitrophenol	50
4-Nitrophenol	50

CUSTOMARY
QUANTITATION LIMIT FOR WATER

Page 2

Semi-Volatile Compounds	Micrograms Per Liter

Dibenzofuran	10
2,4-Dinitrotoluene	10
2,6-Dinitrotoluene	10
Diethyl Phthalate	10
4-Chlorophenylphenyl Ether	10
Fluorene	10
4-Nitroaniline	50
4,6-Dinitro-2-Methylphenol	50
N-Nitrosodiphenylamine	10
4-Bromophenylphenyl Ether	10
Hexachlorobenzene	10
Pentachlorophenol	50
Phenanthrene	10
Anthracene	10
Di-n-Butyl Phthalate	10

Semi-Volatile Compounds	Micrograms Per Liter

Fluoranthene	10
Pyrene	10
Benzyl Butyl Phthalate	10
3,3'-Dichlorobenzidine	20
Benzo(a)Anthracene	10
bis(2-Ethylhexyl) Phthalate	10
Chrysene	10
Di-n-Octyl Phthalate	10
Benzo(b)Fluoranthene	10
Benzo(k)Fluoranthene	10
Benzo(a)Pyrene	10
Indeno(1,2,3-cd) Pyrene	10
Dibenzo(a,h)Anthracene	10
Benzo(g,h,i)Perylene	10

Semi-Volatile Compounds Analysis Data

Sample I.D.	Lab Number	Result	*Amount Detected

PFE-01 (D-14-14)20dac2	012016	B/N Fraction Acid Fraction	N.D. N.D.
PFE-02 (D-14-14)20dac3	012017	B/N Fraction Acid Fraction	N.D. N.D.
PFE-03 (D-14-14)1aaa	012018	B/N Fraction Acid Fraction	N.D. N.D.
PFE-04 (D-14-14)18dcb	012019	B/N Fraction Acid Fraction	N.D. N.D.
PFE-05 (D-14-14)29aac	012020	B/N Fraction Acid Fraction	N.D. N.D.
PFE-06 (D-14-14)20bab	012021	B/N Fraction Acid Fraction	N.D. N.D.
PFE-07 (D-14-14)20aca	012022	B/N Fraction Acid Fraction	N.D. N.D.

* Measured in ug/l.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street
San Francisco, Ca. 94105

MEMORANDUM

DATE:

11/7/88

SUBJECT:

Transmittal of Unvalidated Data and Data Validation Request Form

SITE:

Pacific Fruit Express

CASE #:

10350

SAS #:

41117

MEMO #:

2

FROM:

Dave Bingham

Quality Assurance Management Section (P-3-2)

TO:

Doug Frazier

Section:

T-4-7

The attached data are UNVALIDATED. Please complete this form to indicate if data validation is required and return a photo copy of the form to Dave Bingham (P-3-2) within 30 days, if possible.

1) Is validation of this data required?

☐ YES (complete 2-5 below), ☐ NO, ☐ NOT AT THIS TIME

2) SAMPLES FOR VALIDATION: **

☐ ALL

☐ The Following Samples Only:
(List CLP Samples #s)

3) PARAMETERS FOR VALIDATION: **

☐ ALL

☐ VOAs

☐ BNAs

☐ Pest/PCBs

☐ Metals

☐ Cyanide

☐ Other Parameters and/or
Specific Compounds Only:
(List)

4) Please identify any critical compounds and action levels:

5) Additional Requirements:

** Or attach a copy of Table 1 and mark the samples and/or compounds requiring validation.

ANALYTICAL RESULTS

Page 3 of 4

TABLE 1A

Case No.: 10350/4111Y Memo #2

Site: Pacific Fruit Express

Lab: Keystone

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: November 7, 1988

Analysis Type: Water for RAS metals

UNVALIDATED DATA

Concentration in ug/L

Sample Location/ Sample I.D.	MYC690 D2			MYC691 D2			MYC692 FB			MYC693			MYC694 BG			MYC695			MYC696			Lab Blank		
Parameter	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Aluminum	61.0 L			33.4 L			199 L			47.2 L			29.3 L			21.2 L			153 L			42.3 L		
Antimony	14.7 U			14.7 U			14.7 U			14.7 U			14.7 U			14.7 U			14.7 U			14.7 U		
Arsenic	5.8 L			5.8 L			3.6 U			6.6 L			7.8 L			8.8 L			6.1 L			3.6 U		
Barium	64.6 L			64.6 L			119 L			57.8 L			59.1 L			73.8 L			61.9 L			11.9 U		
Beryllium	0.30 U			0.30 U			0.30 U			0.30 U			0.30 U			0.30 U			0.30 U			0.30 U		
Cadmium	3.1 U			3.1 U			3.1 U			3.1 U			3.1 U			3.1 U			3.1 U			3.1 U		
Calcium	54300			54900			265 L			48000			40000			38500			46800			108 L		
Chromium	3.4 U			3.4 U			3.4 U			3.4 U			3.4 U			3.4 U			3.4 U			3.4 U		
Cobalt	3.8 U			3.8 U			3.8 U			3.8 U			3.8 U			3.8 U			3.8 U			3.8 U		
Copper	76.2			28.6			8.3 L			6.9 L			4.9 L			6.6 L			24.0 L			7.4 L		
Iron	671			406			216			67.3 L			43.4 L			46.4 L			347			45.1 L		
Lead	12.0			6.8			2.3 U			2.3 U			2.3 U			2.3 U			4.5 L			2.3 U		
Magnesium	7660			7630			136 L			6720			4750 L			3670 L			5950			33.5 L		
Manganese	2.4 L			2.1 L			1.5 L			1.5 L			0.60 U			0.60 U			13.9 L			0.60 U		
Mercury	0.20 U			0.20 U			0.20 U			0.22			0.20 U			0.20 U			0.20 U			0.20 U		
Nickel	14.0 U			14.0 U			14.0 U			14.0 U			14.0 U			14.0 U			14.0 U			14.0 U		
Potassium	2300 L			2110 L			354 U			1930 L			2050 L			2030 L			2300 L			354 U		
Selenium	3.7 U			3.7 U			3.7 U			3.7 U			3.7 U			3.7 U			3.7 U			3.7 U		
Silver	2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U		
Sodium	49900			48900 U			399 L			54400			54200			55000			48400			201 L		
Thallium	1.8 U			1.8 U			1.8 U			1.8 U			1.8 U			1.8 U			1.8 U			1.8 U		
Vanadium	8.4 L			8.4 L			3.3 U			11.1 L			13.5 L			9.5 L			9.3 B			3.3 U		
Zinc	17.0 L			11.4 U			11.4 U			11.4 U			11.4 U			29.8			24.0			11.4 U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank; BGr-Background

CRQL-Contract Required Quantitation Limit

ANALYTICAL RESULTS

Page 1 of 4

TABLE 1A

Analysis Type: Soil for RAS metals

Case No.: 10350/4111Y Memo #2

Site: Pacific Fruit Express

Lab: Keystone

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: November 25, 1988

Concentration in mg/kg

Sample Location	MYC683						MYC684 D1						MYC685 D1						MYC686						MYC687						MYC688 BG						MYC689						Lab Blank					
Sample I.D.	MYC683						MYC684 D1						MYC685 D1						MYC686						MYC687						MYC688 BG						MYC689						Lab Blank					
Parameter	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.															
Aluminum	1970	J	e	9210	J	e	10100	J	e	13400	J	e	11800	J	e	13800	J	e	1820	J	e	4.6	L	J	ce																							
Antimony	3.6	U		4.5	U		4.3	U		4.1	U		4.2	U		3.8	U		3.1	U		2.9	U																									
Arsenic	11.2	J	ab	11.1	J	ab	21.3	J	ab	4.5	J	ab	4.0	J	ab	3.1	J	ab	2.5	J	ab	0.72	U	J	b																							
Barium	82.5	J	a	321	J	a	604	J	a	111	J	a	82.1	J	a	72.6	J	a	29.5	L	J	a	2.4	U	J	a																						
Beryllium	0.40	L	J	0.87	L	J	0.97	L	J	1.2	L	J	1.0	L	J	0.96	L	J	0.34	L	J	c	0.080	L	J	c																						
Cadmium	3.5	J	ab	11.5	J	ab	12.4	J	ab	0.87	U	J	0.88	U	J	0.81	U	J	0.65	U	J	b	0.62	U	J	b																						
Calcium	17700			35100			34600			64100			55100			4940			4110			67.9	L	J	c																							
Chromium	78.6			208			197			11.7			18.9			11.3			2.4			0.68	U																									
Cobalt	5.7			7.1	L	J	9.2	L	J	4.9	L	J	3.8	L	J	5.6	L	J	1.8	L	J	c	0.76	U																								
Copper	125			428			533			42.3			33.1			17.1			77.7			0.58	U																									
Iron	14300			17400			20400			11300			11000			13200			5740			7.0	L	J	c																							
Lead	354	J	b	680	J	b	858	J	b	42.4	J	b	78.5	J	b	24.5	J	b	10.1	J	b	0.46	U	J	b																							
Magnesium	1530	J	e	4750	J	e	4780	J	e	8100	J	e	5230	J	e	4440	J	e	913	L	J	ce	5.7	U	J	e																						
Manganese	144	J	a	227	J	a	265	J	a	184	J	a	166	J	a	253	J	a	78.7	J	a	0.12	U																									
Mercury	0.14			0.32			0.58			0.14	U		0.14	U		0.13	U		0.10	U		0.10	U																									
Nickel	12.2			18.3			21.4			6.9	L	J	8.0	L	J	9.2	L	J	3.2	L	J	c	2.8	U																								
Potassium	417	L	J	2090			2310			2840			2900			3880			455	L	J	c	70.8	U																								
Selenium	0.92	U		1.1	U		1.1	U		1.0	U		1.1	U		0.96	U		0.78	U		0.74	U																									
Silver	0.67	L	J	0.83	U		0.79	U		0.76	U		0.77	U		0.70	U		0.57	U		0.54	U																									
Sodium	342	L	J	554	L	J	598	L	J	381	L	J	300	L	J	303	L	J	461	L	J	cd	182	L	J	c																						
Thallium	0.45	U		0.56	U		0.53	U		0.50	U		0.51	U		0.47	U		0.38	U		0.36	U																									
Vanadium	6.0	L	J	23.3			26			36.9			19.9			23.8			8.6	L	J	c	0.66	U																								
Zinc	633	J	e	1380	J	e	1610	J	e	64.4	J	e	112	J	e	43.5	J	e	37.4	J	e	3.0	L	J	ce																							
Percent Solids	80.8			64.7			68.3			71.4			70.2			76.9			95.4			--																										

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank; BG-Background

CRL-Contract Required Quantitation Limit

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

ANALYTICAL RESULTS

TABLE 1A

Page 2 of 4

Analysis Type: Soil for RAS metals

Case No.: 10350/4111Y Memo #2

Site: Pacific Fruit Express

Lab: Keystone

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: November 25, 1988

Concentration in mg/kg

Sample Location	MDL			CRQL														
Sample I.D.																		
Parameter	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Aluminum	3.2			40														
Antimony	2.9			12														
Arsenic	0.72			2														
Barium	2.4			40														
Beryllium	0.060			1														
Cadmium	0.62			1														
Calcium	2.0			1000														
Chromium	0.68			2														
Cobalt	0.76			10														
Copper	0.58			5														
Iron	1.4			20														
Lead	0.46			1														
Magnesium	5.7			1000														
Manganese	0.12			3														
Mercury	0.10			0.1														
Nickel	2.8			8														
Potassium	70.8			1000														
Selenium	0.74			1														
Silver	0.54			2														
Sodium	5.8			1000														
Thallium	0.36			2														
Vanadium	0.66			10														
Zinc	2.3			4														
Percent Solids	--			--														

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank; BG-Background

CRQL-Contract Required Quantitation Limit

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

ANALYTICAL RESULTS

Page 3 of 4

TABLE 1A

Case No.: 10350/4111Y Memo #2

Site: Pacific Fruit Express

Lab: Keystone

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: November 25, 1988

Analysis Type: Water for RAS metals

Concentration in ug/L

Sample Location	MYC690 D2			MYC691 D2			MYC692 FB			MYC693			MYC694 BG			MYC695			MYC696			Lab Blank		
Sample I.D.																								
Parameter	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	
Aluminum	61.0 L	J	cd	33.4 L	J	cd	199 L	J	cd	47.2 L	J	cd	29.3 L	J	cd	21.2 L	J	cd	153 L	J	cd	42.3 L	J	c
Antimony	14.7 U			14.7 U			14.7 U			14.7 U			14.7 U			14.7 U			14.7 U			14.7 U		
Arsenic	5.8 L			5.8 L			3.6 U			6.6 L	J	c	7.8 L	J	c	8.8 L	J	c	6.1 L	J	c	3.6 U		
Barium	64.6 L	J	acd	64.6 L	J	acd	119 L	J	c	57.8 L	J	acd	59.1 L	J	acd	73.8 L	J	acd	61.9 L	J	acd	11.9 U	J	a
Beryllium	0.30 U			0.30 U			0.30 U			0.30 U			0.30 U			0.30 U			0.30 U			0.30 U		
Cadmium	3.1 U			3.1 U			3.1 U			3.1 U			3.1 U			3.1 U			3.1 U			3.1 U		
Calcium	54300	J	e	54900	J	e	265 L	J	cde	48000	J	e	40000	J	e	38500	J	e	46800	J	e	108 L	J	ce
Chromium	3.4 U			3.4 U			3.4 U			3.4 U			3.4 U			3.4 U			3.4 U			3.4 U		
Cobalt	3.8 U			3.8 U			3.8 U			3.8 U			3.8 U			3.8 U			3.8 U			3.8 U		
Copper	76.2	J	b	28.6	J	bd	8.3 L	J	bcd	6.9 L	J	bcd	4.9 L	J	bcd	6.6 L	J	bcd	24.0 L	J	bcd	7.4 L	J	bc
Iron	671	J	bd	406	J	bd	216	J	bd	67.3 L	J	bcd	43.4 L	J	bcd	46.4 L	J	bcd	347	J	bd	45.1 L	J	bc
Lead	12.0	J	b	6.8	J	b	2.3 U	J	b	2.3 U	J	b	2.3 U	J	b	2.3 U	J	b	4.5 L	J	bc	2.3 U	J	b
Magnesium	7660	J	e	7630	J	e	136 L	J	ce	6720	J	e	4750 L	J	ce	3670 L	J	ce	5950	J	e	33.5 L	J	ce
Manganese	2.4 L	J	acd	2.1 L	J	acd	1.5 L	J	c	1.5 L	J	cd	0.60 U			0.60 U			13.9 L	J	c	0.60 U		
Mercury	0.20 U			0.20 U			0.20 U			0.22			0.20 U			0.20 U			0.20 U			0.20 U		
Nickel	14.0 U			14.0 U			14.0 U			14.0 U			14.0 U			14.0 U			14.0 U			14.0 U		
Potassium	2300 L	J	c	2110 L	J	c	354 U			1930 L	J	c	2050 L	J	c	2030 L	J	c	2300 L	J	c	354 U		
Selenium	3.7 U			3.7 U			3.7 U			3.7 U			3.7 U			3.7 U			3.7 U			3.7 U		
Silver	2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U		
Sodium	49900			48900 U			399 L	J	cd	54400			54200			55000			48400			201 L	J	c
Thallium	1.8 U			1.8 U			1.8 U			1.8 U			1.8 U			1.8 U			1.8 U			1.8 U		
Vanadium	8.4 L	J	c	8.4 L	J	c	3.3 U			11.1 L	J	c	13.5 L	J	c	9.5 L	J	c	9.3 L	J	c	3.3 U		
Zinc	17.0 L	J	c	11.4 U			11.4 U			11.4 U			11.4 U			29.8			24.0			11.4 U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank; BG-Background

CRQL-Contract Required Quantitation Limit

TABLE 1A

Case No.: 10350/4111Y Memo #2

Site: Pacific Fruit Express

Lab: Keystone

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: November 25, 1988

Analysis Type: Water for RAS metals

Concentration in ug/L

Sample Location																		
Sample I.D.	IDL			CRQL														
Parameter	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Aluminum	16.4			200														
Antimony	14.7			60														
Arsenic	3.6			10														
Barium	11.9			200														
Beryllium	0.30			5														
Cadmium	3.1			5														
Calcium	9.8			5000														
Chromium	3.4			10														
Cobalt	3.8			50														
Copper	2.9			25														
Iron	6.9			100														
Lead	2.3			5														
Magnesium	28.3			5000														
Manganese	0.60			15														
Mercury	0.20			0.2														
Nickel	14.0			40														
Potassium	354			5000														
Selenium	3.7			5														
Silver	2.7			10														
Sodium	29.1			5000														
Thallium	1.8			10														
Vanadium	3.3			50														
Zinc	11.4			20														

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank; BG-Background

CRQL-Contract Required Quantitation Limit

TABLE 1B

DATA QUALIFIERS

- NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.
- U Indicates that the parameter is not detected above the concentration listed. (Usually the instrument detection limit for waters and the method detection limit for soils with a correction for percent solids.)
- L Indicates results which fall between the instrument detection limit for waters or the method detection limit for soils and the contract required quantitation limit. Results are considered estimates and usable for limited purposes.
- J Results are considered estimates and the data are valid for limited purposes. The results are qualitatively acceptable.
- R Results are rejected and data are invalid for all purposes.

CALCULATIONS FOR RAS INORGANICS IN SOIL

<u>MDL: Method detection limit</u> <u>obtained in mg/kg</u>	<u>CRQL: Contract required</u> <u>quantitation limit in mg/kg</u>
Mercury: $\frac{IDL (ug/L) \times 0.1 L \times 0.001 mg/ug}{0.0002 kg \text{ dry weight}}$	$\frac{CRQL (ug/L) \times 0.1 L \times 0.001 mg/ug}{0.0002 kg \text{ dry weight}}$
Others : $\frac{IDL (ug/L) \times 0.2 L \times 0.001 mg/ug}{0.001 kg \text{ dry weight}}$	$\frac{CRQL (ug/L) \times 0.2 L \times 0.001 mg/ug}{0.001 kg \text{ dry weight}}$

IDL: Instrument detection limit obtained by the laboratory for clean water.



Ind. Heywood
AZ DEQ

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street
San Francisco, Ca. 94105

DEC 22 1988

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: *for* Kent M. Kitchingman, Chief *Lilya R. Ritschman*
Quality Assurance Management Section
Environmental Services Branch, OPM (P-3-2)

TO: Thomas A. Mix, Chief
Site Evaluation Section
Field Operations Branch (T-4-7)

Attached are comments resulting from Region 9 review of the following analytical data:

SITE: Pacific Fruit Express
EPA SITE ID NO.: A2D045804325
CASE/SAS NO.: 10350/4111Y Memo #3

LABORATORY: Acurex
ANALYSIS: RAS, VOA, and BNA

SAMPLE NO.: YE811 through YE817
COLLECTION DATE: 9/14/88 through 9/16/88

REVIEWER: Santiago Lee
TELEPHONE NUMBER: (415) 957-0110

If there are any questions, please contact the reviewer at (415) 957-0110.

Attachment

cc: Carla Dempsey, QA Officer, EPA-HQ (WH-548A)
Data Audit Team (LEMSCO), EMSL-LV

160 Spear Street, Suite 1380
San Francisco, California
94105-1535

415/957-0110



ICF TECHNOLOGY INCORPORATED

Quality Assurance Report

Site : Pacific Fruit Express

EPA Site I.D. Number : A2D045804325

TID Number : 9A-8810-026

Case Number : 10350/4111Y Memo #3

Laboratory : Acurex

Analyses : 7 Soil samples for RAS VOA and BNA

Sample Numbers : YE811 through YE817

Collection Date(s) : 9/14/88 through 9/16/88

Date Data Package Received by ESAT : December 7, 1988

Data Package Received from : ESB, EPA Region IX

Follow up Data Request Received on :

Evaluated by : Santiago Lee,
ESAT/ICF Technology, Inc.

Data Review Completed on : December 16, 1988

Approved by : *Gerome Vail*

Data Review Report Forwarded to ESB on : December 19, 1988

EPA Concurrence :

Case No. : 10350/4111Y Memo #3
Site : Pacific Fruit Express
Lab. : Acurex
Reviewer : Santiago Lee,
ESAT/ICF Technology, Inc.
Date : December 15, 1988

RAS VOA and BNA
Seven (7) soil samples

Data Validation Report

I. Introduction

Acurex laboratory received seven (7) low concentration soil samples on September, 1988 for RAS volatiles (VOA) and semi-volatiles (BNA) analyses. Samples numbers are YE811 through YE817. Samples YE812/YE813 are a field duplicate pair. A field blank was not submitted.

The samples were collected on 9/14/88 through 9/16/88. They were analyzed for VOA on 9/17/88 and 9/21/88. For the BNA analyses, the samples were extracted on 9/23/88 and analyzed on 10/2/88 to 10/3/88.

The analytical results with qualifications are presented in Table 1A. Table 1C lists the tentatively identified compounds (TICs) detected in the samples. The sample quantitation limits of target compound list (TCL) compounds are presented in Table 2.

This document was prepared according to EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses," April 11, 1985.

II. Validity and Comments

A. Due to a precision problem, results reported in Table 1A for the following analytes are considered as estimates (J) and usable for limited purposes only:

- o Carbon disulfide, 1,1-dichloroethane, 1,1,1-trichloroethane, tetrachloroethene, ethylbenzene and total xylenes in sample YE811.
- o Phenanthrene and pyrene in sample YE817
- o Methylene chloride and toluene in VOA method blank VBLK 1
- o Acetone in VOA method blank VBLK 2
- o N-Nitrosodiphenylamine in BNA method blank SBLK 1.

Concentrations for these compounds are above the instrument detection limits but below the contract required quantitation limits (CRQL). The value is considered to be qualitatively acceptable but quantitatively unreliable due to the uncertainty in analytical precision near the limit of detection.

- B. Due to blank contamination problem, results reported in Table 1A for the following analytes are considered as estimated (J) and usable for limited purposes only:

- o Methylene chloride in samples YE811 and YE814.
- o Acetone in samples YE811 through YE814, YE816 and YE817
- o Toluene in samples YE812 through YE814
- o N-Nitrosodiphenylamine in samples YE811, YE812, YE814 and YE815

The analytes listed above were found in the method blank at the following concentrations:

Methylene chloride: 1 ug/Kg
 Acetone: 9 - 15 ug/Kg
 Toluene: 0.8 ug/Kg
 N-Nitrosodiphenylamine: 63 ug/Kg.

The results for the samples listed above were considered as non-detected and estimated (U,J) and the quantitation limits have been increased where appropriate, according to the blank qualification rules.

- C. Due to an accuracy problem, detected result reported in Table 1A for the following analyte is considered as estimate (J) and usable for limited purposes only:

- o Toluene in sample YE817

The concentration detected was above the five-point initial calibration range of 20 - 200 ug/Kg.

- D. Due to calibration problem, the reported results for the following analytes are considered as estimates (J) and usable for limited purposes only:

- o Acetone and 1,2-dichloroethene (total) for all samples and all VOA method blanks
- o Chloromethane for samples YE814 through YE817, YE814 MS and YE814 MSD and for VOA method blanks VBLK 2
- o Benzyl alcohol and 4-nitroaniline for samples YE811 through YE817 and YE815 MS.
- o Benzoic acid, 4-chloroaniline, 2-nitroaniline, 3-nitroaniline, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol and 3,3'-dichlorobenzidine for all samples and the BNA method blank SBLK 1

Percent differences of $>\pm 25\%$ (advisory guideline) were observed for some analytes in the continuing calibrations. These deviations are not expected to affect the results significantly, except for the analytes listed above (see Attachment 1).

The detected results and quantitation limits for these analytes in the affected samples are to be considered as estimates (see Table 1A and Table 2).

- E. For the VOA analyses, the sample YE817 had one surrogate standard and two internal standards outside of QC limits (see Attachment 2). The sample was re-analyzed and similar results were obtained. The impact on the data cannot be determined.
- F. The SW846 technical holding times for the analyses were not exceeded for any of the samples.
- G. All other results are considered valid and usable for all purposes. All quality control criteria, other than those discussed above, have been met and considered acceptable.

ANALYTICAL RESULTS

TABLE 1A*

Page 1 of 2

Analysis Type: Soil Samples for
RAS VOA and BNA

Case No.: 10350/4111Y Memo #3
 Site: Pacific Fruit Express
 Lab.: Acurex
 Reviewer: Santiago Lee,
 ESAT/ICF Technology, Inc.
 Date: December 14, 1988

Concentration in ug/Kg

Sample Location: Sample I.D.	YE811			YE812 D1			YE813 D1			YE814			YE815			YE816			YE817		
	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Compound																					
VOLATILES																					
Methylene Chloride	6 U	J	b	6 U			6 U			7 U	J	b	7			6 U			5 U		
Acetone	33 U	J	bd	95 U	J	bd	34 U	J	bd	23 U	J	bd	11 U	J	d	21 U	J	bd	26 U	J	bd
Carbon disulfide	0.9	J	a	6 U			6 U			7 U			5 U			6 U			5 U		
1,1-Dichloroethane	5	J	a	6 U			6 U			7 U			5 U			6 U			5 U		
1,1,1-Trichloroethane	2	J	a	6 U			6 U			7 U			5 U			6 U			5 U		
Tetrachloroethene	2	J	a	6 U			6 U			7 U			5 U			6 U			5 U		
Toluene	7			6 U	J	b	6 U	J	b	7 U	J	b	53			14			230	J	c
Ethylbenzene	3	J	a	6 U			6 U			7 U			5 U			6 U			5 U		
Styrene	7			6 U			6 U			7 U			5 U			6 U			5 U		
Total Xylenes	4	J	a	6 U			6 U			7 U			5 U			6 U			16		
SEMI-VOLATILES																					
N-Nitrosodiphenylamine	380 U	J	b	410 U	J	b	410 U			450 U	J	b	350 U	J	b	390 U			340 U		
Phenanthrene	380 U			410 U			410 U			450 U			350 U			390 U			230	J	a
Pyrene	380 U			410 U			410 U			450 U			350 U			390 U			67	J	a
Percent Solids	87%			82%			81%			74%			93%			84%			98%		

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

NA - Not Analyzed

ANALYTICAL RESULTS

TABLE 1A*

Case No.: 10350/4111Y Memo #3
 Site: Pacific Fruit Express
 Lab.: Acurex
 Reviewer: Santiago Lee,
 ESAT/ICF Technology, Inc.
 Date: December 14, 1988

Page 2 of 2

Analysis Type: Soil Samples for
 RAS VOA and BNA

Concentration in ug/Kg

Sample Location: Sample I.D.	Method Blank VBlk1			Method Blank VBlk2			Method Blank SBlk1			CRQL								
Compound	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
VOLATILES																		
Methylene Chloride	1	J	a	5	U		NA			5								
Acetone	15	J	d	9	J	ad	NA			10								
Carbon disulfide	5	U		5	U		NA			5								
1,1-Dichloroethane	5	U		5	U		NA			5								
1,1,1-Trichloroethane	5	U		5	U		NA			5								
Tetrachloroethene	5	U		5	U		NA			5								
Toluene	0.8	J	a	5	U		NA			5								
Ethylbenzene	5	U		5	U		NA			5								
Styrene	5	U		5	U		NA			5								
Total Xylenes	5	U		5	U		NA			5								
SEMI-VOLATILES																		
N-Nitrosodiphenylamine	NA			NA			63	J	a	330								
Benanthrene	NA			NA			330	U		330								
Pyrene	NA			NA			330	U		330								

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

NA - Not Analyzed

TABLE 1B
DATA QUALIFIERS

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

- U Indicates that the compound is not detected above the concentration listed.
- J Results are estimated and the data are valid for limited purposes. The results are qualitatively acceptable.
- N Presumptive evidence of the presence of the material. The compound identification is considered to be tentative. The data are usable for limited purposes.
- R Results are rejected and data are invalid for all purposes.

TABLE 1C
Detected Tentatively Identified Compounds (TICs)

CASE No. : 10350/4111Y Memo #3
 SITE : Pacific Fruit Express
 LAB : Acurex
 REVIEWER : Santiago Lee,
 ESAT/ICF Technology, Inc.
 DATE : December 15, 1988

Sample Number	Compound	Fraction	Retention Tim. min.	Concentration (ug/Kg)	Rating ^a (Remarks)
YE811	C ₉ H ₁₈ Hydrocarbon	VOA	14.57	40 J	B
	C ₁₀ H ₂₀ Hydrocarbon	VOA	15.43	67 J	B
	C ₄ -Cydohexane	VOA	16.18	48 J	B
	C ₁₀ H ₂₂ Hydrocarbon	VOA	16.55	76 J	B
	Unknown Hydrocarbon	VOA	16.98	43 J	
	C ₁₁ H ₂₄ Hydrocarbon	VOA	17.23	60 J	B
	Unknown Hydrocarbon	VOA	17.70	81 J	
	Decahydronaphthalene	VOA	18.47	47 J	A
	C ₁₁ H ₂₄ Hydrocarbon	VOA	19.12	43 J	B
	C ₁₁ H ₂₄ Hydrocarbon	VOA	19.40	140 J	B
	Alkyl Phenol	BNA	16.15	420 J	B
	Alkyl Phenol	BNA	16.50	270 J	B
YE812 D1	Unknown Hydrocarbon	VOA	14.83	23 J	
	Unknown Hydrocarbon	VOA	16.38	20 J	
	C ₁₀ H ₂₂ Hydrocarbon	VOA	16.53	12 J	B
	Unknown Hydrocarbon	VOA	17.23	14 J	
	C ₁₁ H ₂₂ Hydrocarbon	VOA	17.57	12 J	B
	Unknown Hydrocarbon	VOA	17.72	14 J	
	C ₁₁ H ₂₂ Hydrocarbon	VOA	18.08	16 J	B
	Decahydronaphthalene	VOA	18.47	15 J	A
	C ₁₁ H ₂₀ Hydrocarbon	VOA	19.05	23 J	B
	None Found	BNA			
YE813 D1	Unknown	VOA	17.55	6 J	
	Unknown Hydrocarbon	BNA	15.98	300 J	
	Unknown Hydrocarbon	BNA	16.90	210 J	
	Unknown	BNA	23.98	300 J	
YE814	Trichlorotrifluoro-ethane	VOA	3.27	15 J	A
	C ₁₀ H ₁₆ Hydrocarbon	VOA	17.68	7 J	B
	None Found	BNA			
YE815	C ₉ H ₂₀ Hydrocarbon	VOA	13.47	11 J	B
	Unknown Hydrocarbon	VOA	14.53	12 J	
	C ₁₀ H ₂₀ Hydrocarbon	VOA	15.38	17 J	B
	C ₃ -Benzene	VOA	16.20	14 J	A

TABLE 1C
(continued)

<u>Sample Number</u>	<u>Compound</u>	<u>Fraction</u>	<u>Retention Tim. min.</u>	<u>Concentration (ug/Kg)</u>	<u>Rating^a (Remarks)</u>
YE815	C ₁₀ H ₂₂ Hydrocarbon	VOA	16.50	35 J	B
	Unknown Hydrocarbon	VOA	17.18	15 J	
	C ₄ -Cyclohexane	VOA	17.60	8 J	
	Unknown Hydrocarbon	VOA	17.68	15 J	
	Unknown Hydrocarbon	VOA	18.37	8 J	
	None Found	BNA			
YE816	Unknown	VOA	14.63	8 J	
	None Found	BNA			
YE817	Unknown Hydrocarbon	VOA	14.53	660 J	B A B A B B B B A A A
	C ₁₀ H ₂₀ Hydrocarbon	VOA	15.38	790 J	
	C ₃ -Benzene	VOA	16.20	800 J	
	C ₁₀ H ₂₂ Hydrocarbon	VOA	16.52	1700 J	
	C ₃ -Benzene	VOA	17.02	500 J	
	Unknown Hydrocarbon	VOA	17.18	920 J	
	Unknown Hydrocarbon	VOA	17.68	550 J	
	Unknown Hydrocarbon	VOA	18.57	750 J	
	C ₁₁ H ₂₂ Hydrocarbon	VOA	19.08	970 J	
	C ₁₁ H ₂₄ Hydrocarbon	VOA	19.38	2400 J	
	C ₁₃ H ₂₈ Hydrocarbon	BNA	11.87	2100 J	
	C ₁₄ H ₃₀ Hydrocarbon	BNA	13.00	4000 J	
	Dimethyl Naphthalene	BNA	13.32	1800 J	
	Dimethyl Naphthalene	BNA	13.53	1600 J	
	Unknown Hydrocarbon	BNA	13.65	620 J	
	Unknown Hydrocarbon	BNA	14.03	1300 J	
	Trimethyl Naphthalene	BNA	14.66	960 J	
	Unknown Hydrocarbon	BNA	15.02	1500 J	
	Unknown Hydrocarbon	BNA	15.48	1200 J	
	Unknown	BNA	15.62	420 J	
	Unknown Hydrocarbon	BNA	15.95	1400 J	
	Unknown Hydrocarbon	BNA	16.93	720 J	
	Unknown Hydrocarbon	BNA	17.68	1000 J	
	Unknown Hydrocarbon	BNA	18.48	700 J	
	Unknown	BNA	19.05	390 J	
	Unknown Hydrocarbon	BNA	19.25	460 J	
	Unknown	BNA	23.90	1000 J	
	Unknown Hydrocarbon	BNA	25.17	1000 J	
	Unknown	BNA	26.48	970 J	
	Unknown	BNA	28.73	1100 J	

J (estimated): Value is considered usable for limited purposes.

^a Rating codes--probability that identification is correct:

A = High B = Moderate C = Low

ANALYTICAL RESULTS

TABLE 1A

Page 4 of 4

Case No.: 10350/4111Y Memo #2

Site: Pacific Fruit Express

Lab: Keystone

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: November 7, 1988

Analysis Type: Water for RAS metals

UNVALIDATED DATA

Concentration in ug/L

Sample Location																		
Sample I.D.	IDL			CRQL														
Parameter	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Aluminum	16.4			200														
Antimony	14.7			60														
Arsenic	3.6			10														
Barium	11.9			200														
Beryllium	0.30			5														
Cadmium	3.1			5														
Calcium	9.8			5000														
Chromium	3.4			10														
Cobalt	3.8			50														
Copper	2.9			25														
Iron	6.9			100														
Lead	2.3			5														
Magnesium	28.3			5000														
Manganese	0.60			15														
Mercury	0.20			0.2														
Nickel	14.0			40														
Potassium	354			5000														
Selenium	3.7			5														
Silver	2.7			10														
Sodium	29.1			5000														
Thallium	1.8			10														
Vanadium	3.3			50														
Zinc	11.4			20														

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank; BQ-Background

CRQL-Contract Required Quantitation Limit

ARIZONA DEPARTMENT OF HEALTH SERVICES

State Laboratory

Jon M. Counts, Dr. P. H., Assistant Director
1520 West Adams, Phoenix, Arizona 85007
(602) 255-1188

September 26, 1988

PWS Number:

HEYWOOD, J
DEQ
ADEQ/OWQ/HYDROLOGY
2005 N CENTRAL AVE
PHOENIX, AZ 85004

TYPE OF SAMPLE: GROUND WATER
Custody: Y
Priority: 3

Sample Name: PFE-01
Station: (D-14-14)20dac2
Date Sampled:
Time Sampled:

PROCESSING:

X Total Recoverable
Dissolved (Filtered)
Leachate/EP Tox
Other:

Note: All samples, including chain-of-custody, will be disposed of within 60 days unless a "Save Sample" form is received by the Chemistry Laboratory.

Comments:

-- ANALYTICAL RESULTS --

DATE	COMPOUND	RESULT	STORET NUMBER	METHOD FOR WATERS	DET. LIMITS FOR WATERS	METHOD FOR SOLIDS	DET. LIMITS FOR SOLIDS
AB #	REPORTED						
2016	09/26/88	Fluoride	0.26	mg/l	951	EPA 340.2	0.20 mg/l N/A
	09/26/88	Hardness	169	mg/l	900	EPA 130.2	10 mg/l N/A
	09/26/88	Nitrite/Nitrate Total	0.83	mg/l	630	EPA 353.2	0.01 mg-N/l N/A
	09/26/88	Alkalinity, Total	141	mg/l	410	EPA 310.1	2.0 mg/l N/A
	09/26/88	pH	7.84		403	EPA 150.1	0.1 SU EPA 9040 0.1 SU
	09/26/88	Sulfate	118	mg/l	945	EPA 375.2	10 mgSO4/l N/A
	09/26/88	Total Dissolved Solids	371	mg/l	70300	EPA 160.1	10 mg/l N/A
	09/26/88	Chloride	19.2	mg/l	940	Std Meth 407C	1.0 mg/l N/A
	09/26/88	ACID FRACTION	<i>To Follow</i>		EPA 625		
		B/N FRACTION			EPA 625		

Red and Approved:

S. Davis, Manager

of Environmental and Analytical Chemistry

S. Davis

ARIZONA DEPARTMENT OF HEALTH SERVICES

State Laboratory

Jon M. Counts, Dr. P. H., Assistant Director
1520 West Adams, Phoenix, Arizona 85007
(602) 255-1188

September 26, 1988

PWS Number:

HEYWOOD, J
DEQ
ADEQ/DWG/HYDROLOGY
2005 N CENTRAL AVE
PHOENIX, AZ 85004

TYPE OF SAMPLE: GROUND WATER
Custody: Y
Priority: 3

Sample Name: PFE-02
Station: (D-14-14)20dac3
Date Sampled:
Time Sampled:

PROCESSING:

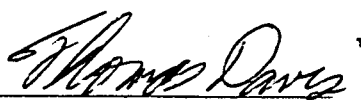
X Total Recoverable
Dissolved (Filtered)
Leachate/EP Tox
Other:

Note: All samples, including chain-of-custody, will be disposed of within 60 days unless
a "Save Sample" form is received by the Chemistry Laboratory.

Comments:

-- ANALYTICAL RESULTS --

DATE	COMPOUND	RESULT	STORET NUMBER	METHOD FOR WATERS	DET. LIMITS FOR WATERS	METHOD FOR SOLIDS	DET. LIMITS FOR SOLIDS
AB #	REPORTED						
2017	09/26/88	Fluoride	0.26	mg/l	951	EPA 340.2	0.20 mg/l N/A
	09/26/88	Hardness	169	mg/l	900	EPA 130.2	10 mg/l N/A
	09/26/88	Nitrite/Nitrate Total	0.82	mg/l	630	EPA 353.2	0.01 mg-N/l N/A
	09/26/88	Alkalinity, Total	140	mg/l	410	EPA 310.1	2.0 mg/l N/A
	09/26/88	pH	7.82		403	EPA 150.1	0.1 SU EPA 9040 0.1 SU
	09/26/88	Sulfate	158	mg/l	945	EPA 375.2	10 mgSO4/l N/A
	09/26/88	Total Dissolved Solids	366	mg/l	70300	EPA 160.1	10 mg/l N/A
	09/26/88	Chloride	19.8	mg/l	940	Std Meth 407C	1.0 mg/l N/A
		ACID FRACTION	<i>To Follow</i>		EPA 625		
		B/N FRACTION			EPA 625		

Reviewed and Approved: 
Thomas S. Davis, Manager
Office of Environmental and Analytical Chemistry

ARIZONA DEPARTMENT OF HEALTH SERVICES

State Laboratory

Jon M. Counts, Dr. P. H., Assistant Director
1520 West Adams, Phoenix, Arizona 85007
(602) 255-1188

October 4, 1988

PWS Number:

HEYWOOD, J
DEQ
ADEQ/DWG/HYDROLOGY
2005 N CENTRAL AVE
PHOENIX, AZ 85004

TYPE OF SAMPLE: GROUND WATER
Custody: Y
Priority: 3

Sample Name: PFE-3
Station: (D-14-14)1aaa
Date Sampled:
Time Sampled:

PROCESSING:

X Total Recoverable
Dissolved (Filtered)
Leachate/EP Tox
Other:

Note: All samples, including chain-of-custody, will be disposed of within 60 days unless a "Save Sample" form is received by the Chemistry Laboratory.

Comments:

-- ANALYTICAL RESULTS --

LAB #	DATE REPORTED	COMPOUND	RESULT	STORET NUMBER	METHOD FOR WATERS	DET. LIMITS FOR WATERS	METHOD FOR SOLIDS	DET. LIMITS FOR SOLIDS
2018	09/26/88	Fluoride	< 0.20 mg/l	951	EPA 340.2	0.20 mg/l	N/A	
	09/26/88	Hardness	< 10.0 mg/l	900	EPA 130.2	10 mg/l	N/A	
	09/26/88	Nitrite/Nitrate Total	< 0.10 mg/l	630	EPA 353.2	0.01 mg-N/l	N/A	
	09/26/88	Alkalinity, Total	< 2 mg/l	410	EPA 310.1	2.0 mg/l	N/A	
	09/26/88	pH	3.81	403	EPA 150.1	0.1 SU	EPA 9040	0.1 SU
	09/26/88	Sulfate	< 10.0 mg/l	945	EPA 375.2	10 mgSO4/l	N/A	
	09/26/88	Total Dissolved Solids	21 mg/l	70300	EPA 160.1	10 mg/l	N/A	
	09/26/88	Chloride	2.30 mg/l	940	Std Meth 407C	1.0 mg/l	N/A	
		ACID FRACTION	To Follow		EPA 625			
		B/N FRACTION			EPA 625			

Reviewed and Approved:
as S. Davis, Manager
ce of Environmental and Analytical Chemistry



ARIZONA DEPARTMENT OF HEALTH SERVICES

State Laboratory

PWS Number: Jon M. Counts, Dr. P. H., Assistant Director
1520 West Adams, Phoenix, Arizona 85007
(602) 255-1188

October 4, 1988

HEYWOOD, J
DEB
ADES/DWG/HYDROLOGY
2005 N CENTRAL AVE
PHOENIX, AZ 85004

TYPE OF SAMPLE:
Custody: Y
Priority: 3

Sample Name: PFE-04
Station: (D-14-14)18dcb
Date Sampled:
Time Sampled:

PROCESSING:
X Total Recoverable
Dissolved (Filtered)
Leachate/EP Tox
Other:

Note: All samples, including chain-of-custody, will be disposed of within 60 days unless a "Save Sample" form is received by the Chemistry Laboratory.

Comments:

-- ANALYTICAL RESULTS --

DATE	COMPOUND	RESULT	STORET NUMBER	METHOD FOR WATERS	DET. LIMITS FOR WATERS	METHOD FOR SOLIDS	DET. LIMITS FOR SOLIDS
REPORTED							
09/26/88	Fluoride	0.34 mg/l	951	EPA 340.2	0.20 mg/l	N/A	
09/26/88	Hardness	147 mg/l	900	EPA 130.2	10 mg/l	N/A	
09/26/88	Nitrite/Nitrate Total	0.93 mg/l	630	EPA 353.2	0.01 mg-N/l	N/A	
09/26/88	Alkalinity, Total	146 mg/l	410	EPA 310.1	2.0 mg/l	N/A	
09/26/88	pH	7.99	403	EPA 150.1	0.1 SU	EPA 9040	0.1 SU
09/26/88	Sulfate	123 mg/l	945	EPA 375.2	10 mgSO4/l	N/A	
09/26/88	Total Dissolved Solids	362 mg/l	70300	EPA 160.1	10 mg/l	N/A	
09/26/88	Chloride	20.1 mg/l	940	Std Meth 407C	1.0 mg/l	N/A	
	ACID FRACTION	To Follow		EPA 625			
	B/N FRACTION			EPA 625			

Reviewed and Approved:

as S. Davis, Manager

ce of Environmental and Analytical Chemistry

ARIZONA DEPARTMENT OF HEALTH SERVICES

State Laboratory

PWS Number:

Jon M. Counts, Dr. P. H., Assistant Director
1520 West Adams, Phoenix, Arizona 85007
(602) 255-1188

October 4, 1988

KEYWOOD, J
DEQ
ADEQ/OWQ/HYDROLOGY
2005 N CENTRAL AVE
PHOENIX, AZ 85004

TYPE OF SAMPLE: GROUND WATER
Custody: Y
Priority: 3

Sample Name: PFE-05
Station: (D-14-14)29aac
Date Sampled:
Time Sampled:

PROCESSING:

X Total Recoverable
Dissolved (Filtered)
Leachate/EP Tox
Other:

Note: All samples, including chain-of-custody, will be disposed of within 60 days unless a "Save Sample" form is received by the Chemistry Laboratory.

Comments:

-- ANALYTICAL RESULTS --

DATE	COMPOUND	RESULT	STORET NUMBER	METHOD FOR WATERS	DET. LIMITS FOR WATERS	METHOD FOR SOLIDS	DET. LIMITS FOR SOLIDS
REPORTED							
09/26/88	Fluoride	0.30 mg/l	951	EPA 340.2	0.20 mg/l	N/A	
09/26/88	Hardness	119 mg/l	900	EPA 130.2	10 mg/l	N/A	
09/26/88	Nitrite/Nitrate Total	0.60 mg/l	630	EPA 353.2	0.01 mg-N/l	N/A	
09/26/88	Alkalinity, Total	132 mg/l	410	EPA 310.1	2.0 mg/l	N/A	
09/26/88	pH	7.94	403	EPA 150.1	0.1 SU	EPA 9040	0.1 SU
09/26/88	Sulfate	133 mg/l	945	EPA 375.2	10 mgSO4/l	N/A	
09/26/88	Total Dissolved Solids	328 mg/l	70300	EPA 160.1	10 mg/l	N/A	
09/26/88	Chloride	12.4 mg/l	940	Std Meth 407C	1.0 mg/l	N/A	
	ACID FRACTION	To Follow		EPA 625			
	B/N FRACTION			EPA 625			

Reviewed and Approved:

S. Davis, Manager

of Environmental and Analytical Chemistry

ARIZONA DEPARTMENT OF HEALTH SERVICES

State Laboratory

Jon M. Counts, Dr. P. H., Assistant Director
1520 West Adams, Phoenix, Arizona 85007
(602) 255-1188

October 4, 1988

PWS Number:

HEYWOOD, J
DEQ
ADEQ/DWQ/HYDROLOGY
2005 N CENTRAL AVE
PHOENIX, AZ 85004

TYPE OF SAMPLE: GROUND WATER
Custody: Y
Priority: 3

Sample Name: PFE-06
Station: (D-14-14)20bab
Date Sampled:
Time Sampled:

PROCESSING:

X Total Recoverable
Dissolved (Filtered)
Leachate/EP Tox
Other:

Note: All samples, including chain-of-custody, will be disposed of within 60 days unless a "Save Sample" form is received by the Chemistry Laboratory.

Comments:

-- ANALYTICAL RESULTS --

DATE AB # REPORTED	COMPOUND	RESULT	STORET NUMBER	METHOD FOR WATERS	DET. LIMITS FOR WATERS	METHOD FOR SOLIDS	DET. LIMITS FOR SOLIDS
09/26/88	Fluoride	0.29 mg/l	951	EPA 340.2	0.20 mg/l	N/A	
09/26/88	Hardness	108 mg/l	900	EPA 130.2	10 mg/l	N/A	
09/26/88	Nitrite/Nitrate Total	0.56 mg/l	630	EPA 353.2	0.01 mg-N/l	N/A	
09/26/88	Alkalinity, Total	136 mg/l	410	EPA 310.1	2.0 mg/l	N/A	
09/26/88	pH	9.03	403	EPA 150.1	0.1 SU	EPA 9040	0.1 SU
09/26/88	Sulfate	88.6 mg/l	945	EPA 375.2	10 mgSO4/l	N/A	
09/26/88	Total Dissolved Solids	314 mg/l	70300	EPA 160.1	10 mg/l	N/A	
09/26/88	Chloride	10.8 mg/l	940	Std Meth 407C	1.0 mg/l	N/A	
	ACID FRACTION	To Follow		EPA 625			
	B/N FRACTION			EPA 625			

Reviewed and Approved:

as S. Davis, Manager

ce of Environmental and Analytical Chemistry

ARIZONA DEPARTMENT OF HEALTH SERVICES

State Laboratory

PWS Number:

Jon M. Counts, Dr. P. H., Assistant Director
1520 West Adams, Phoenix, Arizona 85007
(602) 255-1188

October 4, 1988

KEYWOOD, J
DEQ
ADEQ/DWG/HYDROLOGY
2005 N CENTRAL AVE
PHOENIX, AZ 85004

TYPE OF SAMPLE: GROUND WATER
Custody:
Priority:

Sample Name: PFE-07
Station: (D-14-14)20aca
Date Sampled:
Time Sampled:

PROCESSING:

X Total Recoverable
Dissolved (Filtered)
Leachate/EP Tox
Other:

Note: All samples, including chain-of-custody, will be disposed of within 60 days unless a "Save Sample" form is received by the Chemistry Laboratory.

Comments:

-- ANALYTICAL RESULTS --

LAB #	DATE REPORTED	COMPOUND	RESULT	STORET NUMBER	METHOD FOR WATERS	DET. LIMITS FOR WATERS	METHOD FOR SOLIDS	DET. LIMITS FOR SOLIDS
2022	09/26/88	Fluoride	0.22 mg/l	951	EPA 340.2	0.20 mg/l	N/A	
	09/26/88	Hardness	139 mg/l	900	EPA 130.2	10 mg/l	N/A	
	09/26/88	Nitrite/Nitrate Total	0.65 mg/l	630	EPA 353.2	0.01 mg-N/l	N/A	
	09/26/88	Alkalinity, Total	138 mg/l	410	EPA 310.1	2.0 mg/l	N/A	
	09/26/88	pH	7.94	403	EPA 150.1	0.1 SU	EPA 9040	0.1 SU
	09/26/88	Sulfate	108 mg/l	945	EPA 375.2	10 mgSO4/l	N/A	
	09/26/88	Total Dissolved Solids	328 mg/l	70300	EPA 150.1	10 mg/l	N/A	
	09/26/88	Chloride	11.5 mg/l	940	Std Meth 407C	1.0 mg/l	N/A	
		ACID FRACTION	To Follow		EPA 625			
		B/N FRACTION			EPA 625			

Reviewed and Approved:

as S. Davis, Manager

Director of Environmental and Analytical Chemistry



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

215 Fremont Street
San Francisco, Ca. 94105

DEC 01 1988

MEMORANDUM

SUBJECT: Review of Analytical Data
FROM: *Daniel M. Kingman for*
Kent M. Kitchingman, Chief
Quality Assurance Management Section
Environmental Services Branch, OPM (P-3-2)
TO: Tom Mix, Chief
Site Evaluation Section
Field Operations Branch, TWPD (T-4-7)

Attached are comments resulting from Region 9 review of the following analytical data:

SITE: Pacific Fruit Express
EPA SITE ID NO.: AZD 045804325
CASE/SAS NO.: 10350/4111Y #2

LABORATORY: KEYTY
ANALYSES: Metals

SAMPLE NO.: MYC652 to 696
COLLECTION DATE: 9/14 & 15/88

REVIEWER: Greg Nicoll (ICF Technology Incorporated)
TELEPHONE: (415) 957-0110

If there are any questions, please contact the reviewer.

Attachment

cc: Carla Dempsey, QA Officer, EPA-HQ (WH-548A)
Jimmie D. Petty, EMSL-LV, QAD
David Stockton, DPO Region VI X FYI Action



ICF TECHNOLOGY INCORPORATED

QUALITY ASSURANCE REPORT

Site: Pacific Fruit Express

EPA Site I.D. Number: AZD045804325

TID Number: 9A-8810-026

Case Number: 10350/4111Y Memo #2

Laboratory: Keystone

Matrix/Analyses: 7 soils and 7 waters for RAS metals

Sample Number: MYC683 through MYC696

Collection Date: September 14 and 15, 1988

Date Data Package Received by ESAT: November 9, 1988

Data Package Received From: ESB, EPA Region IX

Follow-Up Data Request Received On:

Evaluated By: Greg Nicoll
ESAT/ICF Technology, Inc.

Data Review Completed On: November 25, 1988

Approved By: *George Vail*

Date Data Review Report Forward to ESB: November 25, 1988

EPA Concurrence: *Robert M. Kingham*
12/1/88

Data Validation Report

Case No.: 10350/4111Y Memo #2
Site: Pacific Fruit Express
Laboratory: Keystone
Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.
Date of this report: November 25, 1988

7 soils and 7 waters
for RAS metals

I. Introduction

Seven water samples (sample numbers MYC690 through MYC696) and seven soil samples (sample numbers MYC683 through MYC689) were submitted to the laboratory for RAS metals analyses on September 19, 1988.

Sample number MYC692 is a field blank. Sample number MYC688 and MYC694 are background samples. Sample numbers MYC684 & MYC685 and MYC690 & MYC691 are field duplicates. The soil field duplicates were considered to be collocated. Field duplicate pairs have D# suffix (D1 for the first field pair, D2 for the second field pair) in Table 1A.

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work for July 1987 and EPA document "Laboratory Data Validation Functional Guidelines For Evaluation Inorganic Analyses" (1985).

II. Validity and Comments

- A. The following results are considered usable for limited purposes because of accuracy problems. The results are considered as estimates and are flagged "J" in Table 1A.

Arsenic in sample numbers MYC683 through MYC689
Barium in all samples and laboratory blanks
Cadmium in sample numbers MYC683 through MYC685
Manganese in sample numbers MYC683 through MYC689

Matrix spike recovery results do not meet criteria for accuracy as listed below. The possible percent bias for each element is also presented below.

<u>Parameter</u>	MYC690		MYC683	
	Water	Water	Soil	Soil
	<u>% Recovery</u>	<u>% Bias</u>	<u>% Recovery</u>	<u>% Bias</u>
Arsenic	--	--	232	+130
Barium	40	-60	36	-60
Cadmium	--	--	139	+40
Manganese	--	--	167	+70

The Method of Standard Additions correlation coefficients for arsenic in the sample numbers listed below do not meet criteria for accuracy.

<u>Parameter</u>	<u>Sample Number</u>	<u>Correlation Coefficient</u>
Arsenic	MYC684	0.970
Arsenic	MYC685	0.916
Arsenic	MYC686	0.993
Arsenic	MYC687	0.986

- B. The following results are considered usable for limited purposes because of precision problems. The results are considered as estimates and are flagged "J" in Table 1A.

Arsenic in sample numbers MYC683 through MYC689 and the soil laboratory blank
Cadmium in sample numbers MYC683 through MYC689 and the soil laboratory blank
Copper in sample numbers MYC690 through MYC696 and the water laboratory blank
Iron in sample numbers MYC690 through MYC696 and the water laboratory blank
Lead in all samples and laboratory blanks

Laboratory and field duplicate results did not meet criteria for precision as listed below.

	MYC683	MYC690 D2
	Lab.Dup.	MYC691 D2
	Soil	Water
<u>Parameter</u>	<u>RPD</u>	<u>RPD</u>
Arsenic	88	--
Cadmium	92	--
Copper	--	91
Iron	--	49
Lead	48	55

- C. The following results are considered usable for limited purposes due to quantitation problems. The results are considered as estimates and are flagged "J" in Table 1A.

All results above the instrument detection limit for waters or the method detection limit for soils but below the contract required quantitation limit (denoted with an "L" qualifier)

Results above the instrument detection limit for waters or the method detection limit for soils but below the contract required quantitation limit are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- D. The following results are considered usable for limited purposes due to possible contamination problems. The results are considered as suspects and reported as estimates with a "J" flag in Table 1A.

Aluminum in sample numbers MYC690 through MYC696
Barium in sample numbers MYC690, MYC691, and MYC693 through
MYC696
Calcium in sample number MYC692
Copper in sample numbers MYC691 through MYC696
Iron in sample numbers MYC690 through MYC696
Manganese in sample numbers MYC690, MYC691, and MYC693
Sodium in sample numbers MYC683 through MYC689 and MYC692

These results were detected above the instrument or method detection limit and less than five times the highest field or laboratory blank. Field and laboratory blank results which were less than the contract required quantitation limit and less than twice the instrument or method detection limit were not used to determine contamination problems.

- E. The following results are considered usable for limited purposes because of problems seen with the ICP serial dilution. These results are considered as estimates and are flagged "J" in Table 1A.

Aluminum in sample numbers MYC683 through MYC689 and the soil laboratory blank
Calcium in sample numbers MYC690 through MYC696 and the water laboratory blank
Magnesium in sample numbers MYC683 through MYC696 and both laboratory blanks
Zinc in sample numbers MYC683 through MYC689 and the soil laboratory blank

The ICP serial dilution did not meet criteria as listed below.

	MYC690	MYC683
	Water	Soil
<u>Parameter</u>	<u>RPD</u>	<u>RPD</u>
Aluminum	--	13
Calcium	12	--
Magnesium	12	12
Zinc	--	12

- F. The 40 CFR 136 holding times were not exceeded for the water samples. There were no holding time problems with the soil samples.
- G. The background samples (MYC688 and MYC694) had a number of parameters with concentration levels above the field blank.
- H. All samples were received by the laboratory with cut chain of custody seals. The results may not be useful as legal evidence.
- I. All other results are considered valid and usable for all purposes. All QC parameters, other than those discussed here, have been met.

TABLE 2
Sample Quantitation Limits

Case No. : 10350/4111Y Memo #3
 Site : Pacific Fruit Express
 Lab : Acurex
 Reviewer : Santiago Lee,
 ESAT/ICF Technology, Inc.
 Date : December 16, 1988

<u>Volatile Compounds</u>	<u>Units. ug/Kg</u>	<u>Q</u>	<u>C</u>
Chloromethane	10	J	D
Bromomethane	10		
Vinyl Chloride	10		
Chloroethane	10		
Methylene Chloride	5		
Acetone	10	J	D
Carbon Disulfide	5		
1,1-Dichloroethene	5		
1,1-Dichloroethane	5		
1,2-Dichloroethene (total)	5	J	D
Chloroform	5		
1,2-Dichloroethane	5		
2-Butanone	10		
1,1,1-Trichloroethane	5		
Carbon Tetrachloride	5		
Vinyl Acetate	10		
Bromodichloromethane	5		
1,1,2,2-Tetrachloroethane	5		
1,2-Dichloropropane	5		
trans-1,3-Dichloropropene	5		
Trichloroethene	5		
Dibromochloromethane	5		
1,1,2-Trichloroethane	5		
Benzene	5		
cis-1,3-Dichloropropene	5		
Bromoform	5		
2-Hexanone	10		
4-Methyl-2-pentanone	10		
Tetrachloroethene	5		
Toluene	5		
Chlorobenzene	5		
Ethylbenzene	5		
Styrene	5		
Total Xylenes	5		

Q - Qualifier
 C - Comment

TABLE 2
(continued)

<u>Semi-volatile Compounds</u>	<u>Units, ug/Kg</u>	<u>Q</u>	<u>C</u>
Phenol	330		
bis(2-Chloroethyl)ether	330		
2-Chlorophenol	330		
1,3-Dichlorobenzene	330		
1,4-Dichlorobenzene	330		
Benzyl Alcohol	330	J	D
1,2-Dichlorobenzene	330		
2-Methylphenol	330		
bis(2-Chloroisopropyl)ether	330		
4-Methylphenol	330		
N-Nitroso-di-n-propylamine	330		
Hexachloroethane	330		
Nitrobenzene	330		
Isophorone	330		
2-Nitrophenol	330		
2,4-Dimethylphenol	330		
Benzoic Acid	1600	J	D
bis(2-Chloroethoxy)methane	330		
2,4-Dichlorophenol	330		
1,2,4-Trichlorobenzene	330		
Naphthalene	330		
4-Chloroaniline	330	J	D
Hexachlorobutadiene	330		
4-Chloro-3-methylphenol	330		
2-Methylnaphthalene	330		
Hexachlorocyclopentadiene	330		
2,4,6-Trichlorophenol	330		
2,4,5-Trichlorophenol	1600		
2-Chloronaphthalene	330		
2-Nitroaniline	1600	J	D
Dimethylphthalate	330		
Acenaphthylene	330		
3-Nitroaniline	1600	J	D

Q - Qualifier
C - Comment

TABLE 2
(continued)

<u>Semi-volatile Compounds</u>	<u>Units, ug/Kg</u>	<u>Q</u>	<u>C</u>
Acenaphthene	330		
2,4-Dinitrophenol	1600	J	D
4-Nitrophenol	1600		
Dibenzofuran	330		
2,4-Dinitrotoluene	330		
2,6-Dinitrotoluene	330		
Diethylphthalate	330		
4-Chlorophenyl-phenylether	330		
Fluorene	330		
4-Nitroaniline	1600	J	D
4,6-Dinitro-2-methylphenol	1600	J	D
N-Nitrosodiphenylamine	330		
4-Bromophenyl-phenylether	330		
Hexachlorobenzene	330		
Pentachlorophenol	1600		
Phenanthrene	330		
Anthracene	330		
Di-n-butylphthalate	330		
Fluoranthene	330		
Pyrene	330		
Butylbenzylphthalate	330		
3,3'-Dichlorobenzidine	660	J	D
Benzo(a)anthracene	330		
bis(2-Ethylhexyl)phthalate	330		
Chrysene	330		
Di-n-octylphthalate	330		
Benzo(b)fluoranthene	330		
Benzo(k)fluoranthene	330		
Benzo(a)pyrene	330		
Indeno(1,2,3-cd)pyrene	330		
Dibenz(a,h)anthracene	330		
Benzo(g,h,i)perylene	330		

Q - Qualifier
C - Comment

TABLE 2
(continued)

To calculate the sample quantitation limits, multiply CRQL by the following factors:

<u>Sample No.</u>	<u>Volatiles</u>	<u>Semi-Volatiles</u>
YE811	1.2	1.15
YE812 D1	1.2	1.24
YE813 D1	1.2	1.24
YE814	1.4	1.36
YE815	1.08	1.06
YE816	1.2	1.18
YE817	1.0	1.03
VB1k 1	1.0	NA
VB1k 2	1.0	NA
SB1k 1	NA	1.0

NA - Not Analyzed

ANALYTICAL RESULTS

Page 1 of 4

TABLE 1A

Case No.: 10350/4111Y Memo #2

Analysis Type: Soil for RAS metals

Site: Pacific Fruit Express

Lab: Keystone

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

UNVALIDATED DATA

Date: November 7, 1988

Concentration in mg/kg

Sample Location	MYC683			MYC684 D1			MYC685 D1			MYC686			MYC687			MYC688 BG			MYC689			Lab Blank		
Sample I.D.																								
Parameter	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Aluminum	1970			9210			10100			13400			11800			13800			1820			4.6 L		
Antimony	3.6 U			4.5 U			4.3 U			4.1 U			4.2 U			3.8 U			3.1 U			2.9 U		
Arsenic	11.2			11.1			21.3			4.5			4.0			3.1			2.5			0.72 U		
Barium	82.5			321			604			111			82.1			72.6			29.5 L			2.4 U		
Beryllium	0.40 L			0.87 L			0.97 L			1.2 L			1.0 L			0.96 L			0.34 L			0.080 L		
Cadmium	3.5			11.5			12.4			0.87 U			0.88 U			0.81 U			0.65 U			0.62 U		
Calcium	17700			35100			34600			64100			55100			4940			4110			67.9 L		
Chromium	78.6			208			197			11.7			18.9			11.3			2.4			0.68 U		
Cobalt	5.7			7.1 L			9.2 L			4.9 L			3.8 L			5.6 L			1.8 L			0.76 U		
Copper	125			428			533			42.3			33.1			17.1			77.7			0.58 U		
Iron	14300			17400			20400			11300			11000			13200			5740			7.0 L		
Lead	354			680			858			42.4			78.5			24.5			10.1			0.46 U		
Magnesium	1530			4750			4780			8100			5230			4440			913 L			5.7 U		
Manganese	144			227			265			184			166			253			78.7			0.12 U		
Mercury	0.14			0.32			0.58			0.14 U			0.14 U			0.13 U			0.10 U			0.10 U		
Nickel	12.2			18.3			21.4			6.9 L			8.0 L			9.2 L			3.2 L			2.8 U		
Potassium	417 L			2090			2310			2840			2900			3880			455 L			70.8 U		
Selenium	0.92 U			1.1 U			1.1 U			1.0 U			1.1 U			0.96 U			0.78 U			0.74 U		
Silver	0.67 L			0.83 U			0.79 U			0.76 U			0.77 U			0.70 U			0.57 U			0.54 U		
Sodium	342 L			554 L			598 L			381 L			300 L			303 L			461 L			182 L		
Thallium	0.45 U			0.56 U			0.53 U			0.50 U			0.51 U			0.47 U			0.38 U			0.36 U		
Vanadium	6.0 L			23.3			26			36.9			19.9			23.8			8.6 L			0.66 U		
Zinc	633			1380			1610			64.4			112			43.5			37.4			3.0 L		
Percent Solids	80.8			64.7			68.3			71.4			70.2			76.9			95.4			--		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank; BG-Background

CRQL-Contract Required Quantitation Limit

TABLE 1A

Case No.: 10350/4111Y Memo #2

Site: Pacific Fruit Express

Lab: Keystone

Reviewer: G. Nicoll, ESAT/ICF Technology, Inc.

Date: November 7, 1988

Analysis Type: Soil for RAS metals

UNVALIDATED DATA

Concentration in mg/kg

Sample Location																		
Sample I.D.	MDL			CRQL														
Parameter	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.	Result	Val	Com.
Aluminum	3.2			40														
Antimony	2.9			12														
Arsenic	0.72			2														
Barium	2.4			40														
Beryllium	0.060			1														
Cadmium	0.62			1														
Calcium	2.0			1000														
Chromium	0.68			2														
Cobalt	0.76			10														
Copper	0.58			5														
Iron	1.4			20														
Lead	0.46			1														
Magnesium	5.7			1000														
Manganese	0.12			3														
Mercury	0.10			0.1														
Nickel	2.8			8														
Potassium	70.8			1000														
Selenium	0.74			1														
Silver	0.54			2														
Sodium	5.8			1000														
Thallium	0.36			2														
Vanadium	0.66			10														
Zinc	2.3			4														
Percent Solids	--			--														

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank; BG-Background

CRQL-Contract Required Quantitation Limit

APPENDIX B

Drillers Log

REPORT OF WELL DRILLER

IMPORTANT

PLEASE COMPLETE AND RETURN

This report should be prepared by the driller in all detail and filed with the State Land Commissioner following completion of the well.

1. OWNER CITY OF TUCSON WATER UTILITY
Name
P. O. Box 5615 - Tucson, Arizona
Address

2. Lessee or Operator
Name
Address

3. DRILLER A. L. "Cotton" Boring
Name
1915 South Wilson, Tucson, Arizona
Address

FX-9 Wells

DESCRIPTION OF WELL

6. Total depth of hole 500' ft.

7. Type of casing 3/8" Steel

8. Diameter and length of casing 16 in. from 0 to 500', in. from to, in. from to

9. Method of sealing at reduction points

10. Perforated from 160' to 500', from to, from to, from to

11. Size of cuts 3/16" x 3" Number of cuts per foot 72

12. If screen was installed: Length ft. Diam. in. Type

13. Method of construction Cable tool drilled
drilled, dug, driven, bored, jetted, etc.

14. Date started March 25, 1965
Month Day Year

15. Date completed May 21, 1965
Month Day Year

16. Depth of water 125' ft.
If flowing well, so state.

17. Describe point from which depth measurements were made, and give sea-level elevation if available

18. If flowing well, state method of flow regulation

19. REMARKS:

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Received 6-25-65 by K

Filed 6-29-65 by K

File No. D(11-11)20 bab

(Well Log to Appear on Reverse Side)

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

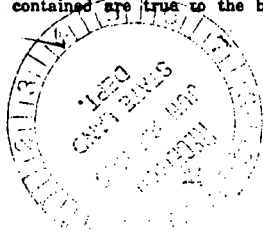
[illegible]

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief. City of Tucson Water & Sewers Dept.

Author By W. D. K.
Project Supervisor W. D. K.

P. O. Box 5615, Tucson, Arizona.....
Address

Date..... **June 24, 1965**



Well #2

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

REPORT OF WELL DRILLER

Report of Well Driller is required to be made and filed with the State Land Commissioner as required by Section 7, Chapter 12, Senate Bill No. 3, Seventeenth Legislature, First Special Session, 1945. A separate report shall be made for each well and filed within 30 days after completion of the well.

1. Owner Del E. Webb Construction Co.
Name
Pueblo Gardens, Tucson, Arizona.
Address
2. Lessee or Operator _____
Name

Address
3. Driller Carl W. Pistor
Name
137 E. Speedway Tucson Arizona.

FX-9 Wells

4. Total depth of hole _____ ft.
5. Type of casing Stovepipe
7. Diameter and length of casing 16 in. from 0 to 300' in. from _____ to _____ in. from _____ to _____
8. Method of sealing at reduction points _____
9. Perforated from _____ to _____ from _____ to _____ from _____ to _____ from _____ to _____
10. Size of cuts _____ Number cuts per foot _____
11. If screen was installed: Length _____ ft. Diam. _____ in. Type _____
12. Method of construction Drilled
drilled, dug, driven, bored, jetted, etc.
13. Date completed April 1949
Month Year
14. Depth to water 114 ft.
If flowing well, so state.
15. Describe point from which depth measurements were made, and give sea-level elevation if available _____
16. If flowing well, state method of flow regulation _____

DISCHARGE DATA

17. Well discharge 550 GPM
gal. per min. or cu. ft. per sec. or miner's inches.
18. Method of discharge measurement _____
weir, orifice, current meter, etc.
19. Drawdown 35' ft.
20. Purpose of use for Sub-division - supplying homes
21. Place of use: Twp. _____ Rge. _____ Section _____
(See 22) Legal subdivision _____ Acres _____
22. Purpose of use _____
Twp. _____ Rge. _____ Section _____
Legal subdivision _____ Acres _____

22. If well is part of irrigation system of Irrigation District, Association or Company, omit 21 and give name of project.

Pueblo Gardens

Name of Project

(D-14-14) 29 a a a

EQUIPMENT DATA

23. Kind of pump Turbine
turbine, centrifugal, etc.
24. Kind of power Electric
electric, natural gas, etc.
25. Horsepower rating of motor _____

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Received 5/2/50 by kb
Filed 5/3/50 by kb
File No. (D-14-14) 29 a a a

Cross-referenced (Name) _____ by _____
Cross-referenced (Basin) _____ by _____
Cross-referenced _____ by _____

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

[illegible]

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller Paul J. Dink Name

Address

Date April 12/52

RECEIVED
MAY 2 1950
STATE LAND DEPT.
OF ARIZONA

CONSTRUCT

WELL DRILLER REPORT

This report should be prepared by the driller in all detail and filed with the Department within 30 days following completion of the well.

1. Owner Kalil Bottling Co. Name _____
931 South Highland Avenue Tucson, Arizona 85719
Address _____
2. Lessee or Operator Same Name _____
Address _____
3. Driller Venture Drilling Co. Name _____
1850 West Grant Road Tucson, Arizona 85705
Address _____

FX-9 Wells

5. Permit No. T-509753
(if issued)

DESCRIPTION OF WELL

6. Total depth of hole 506 ft.
7. Type of Casing Steel, new
8. Diameter and length of casing 24 in. from + 0.3 to 19 ft, 12-3/4 in from 1.3 to 498.
9. Method of sealing at reduction points None
10. Perforated from 220 to 498, from _____ to _____, from _____ to _____
11. Size of cuts 3/16 x 3 Number of cuts per foot 24
12. If screen was installed: Length _____ ft. Diam _____ in. Type _____
13. Method of construction Air-foam rotary, gravel packed
drilled, dug, driven, bored, jetted, etc.
14. Date started 02 22 85
Month day year
15. Date completed 03 09 85
Month day year
16. Depth to water 250 ft. (If flowing well, so state.)
17. Describe point from which depth measurements were made, and give sea-level elevation if available. Top of casing, 1.3 ft, above land surface 2,440 ft (topo sheet
land surface)
18. If flowing well, state method of flow regulation not flowing
19. REMARKS: The depth to water as shown
is an estimate, subject to measure-
ment during well test.

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. 55-509753

Received _____ By _____

Entered _____ By _____

File No. D(14-14)18 dcb

(Well log to appear on Reverse side)

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

[illegible]

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller

Name _____

Box 503, 25

Address

Tucson

Ar: 2

City

State

Zip

Date _____

3/12/85

APPENDIX C

Photo Documentation

PHOTO LOG

SOIL SAMPLE LOCATIONS (REFER TO FIGURE 5)

1. Sample #1, at upstream side of diversion gate
2. Sample #2 & #3, downstream from diversion gate and prior to impoundment
3. Sample #4, at eastern edge of impoundment
4. Sample #5, Railroad Wash
5. Sample #6, background
6. Sample #7, waste pile

PFE FACILITY SITE INSPECTION

7. Waste Drum storage area
8. Waste Drum storage in work area
9. Oil and Fuel drums (note stained soil)
10. Railyard
11. Typical intake drain for impoundment
12. Typical intake drain for impoundment

SURFACE IMPOUNDMENT AREA

13. Diversion gate
14. Belt skimmer
15. Surface impoundment inlet from diversion gate
16. Edge of impoundment (note drum)
17. Surface impoundment, southern end (note stained soil)
18. Surface impoundment from south looking north - arrow indicates waste pile
19. Surface impoundment outlet to ditch connecting to Railroad Wash
20. Railroad Wash - looking north
21. Waste pile east of Railroad Wash.



1.



2.



3.



4.



5.



6.



7.



8.



9.



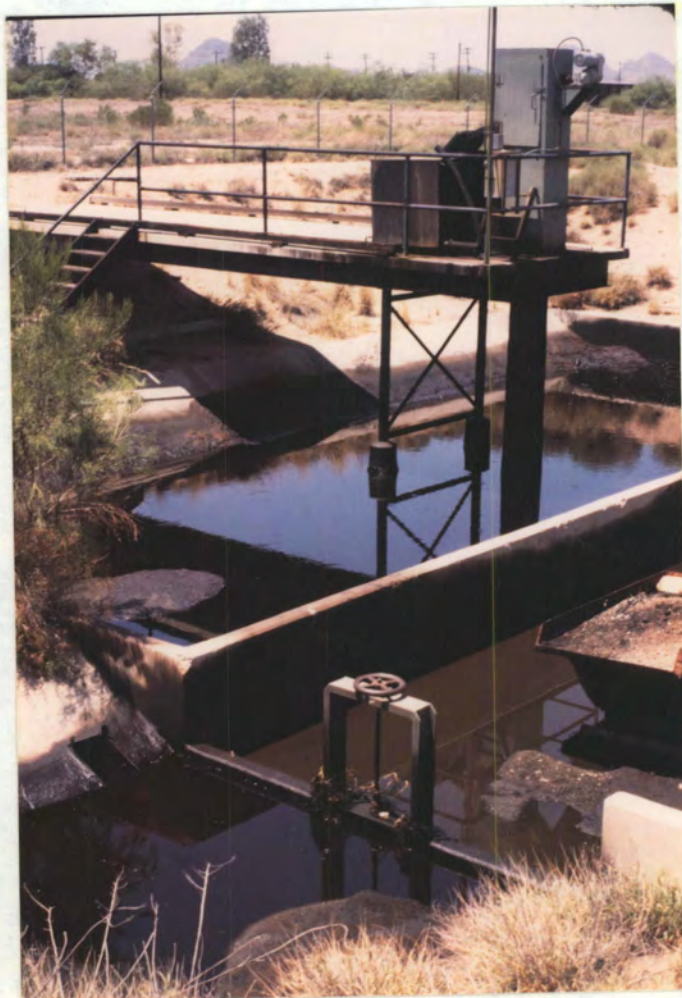
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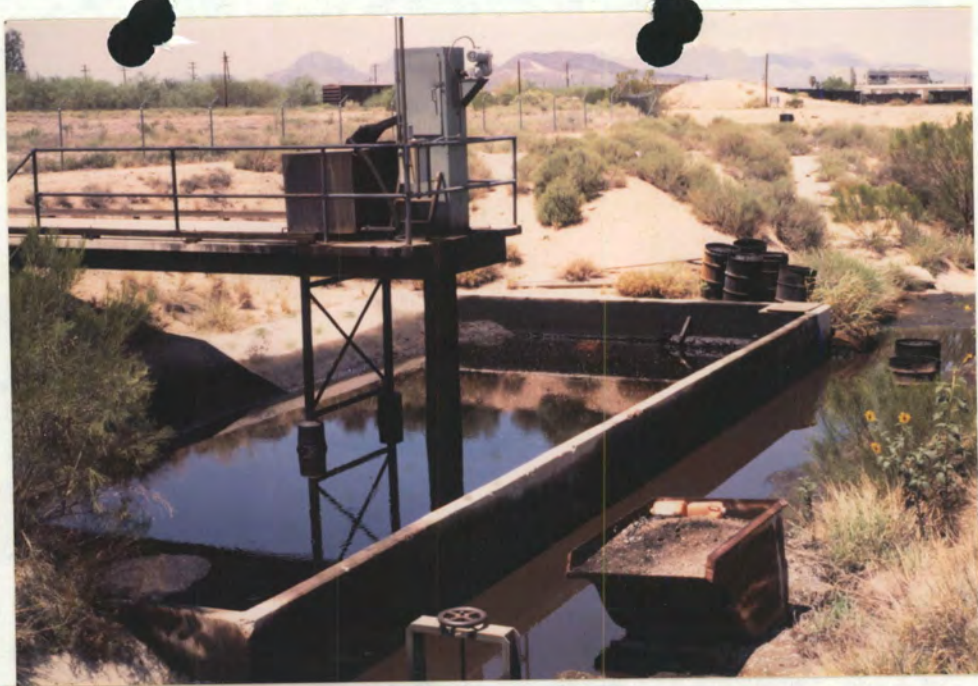
11.



12.



13.



14.



15.



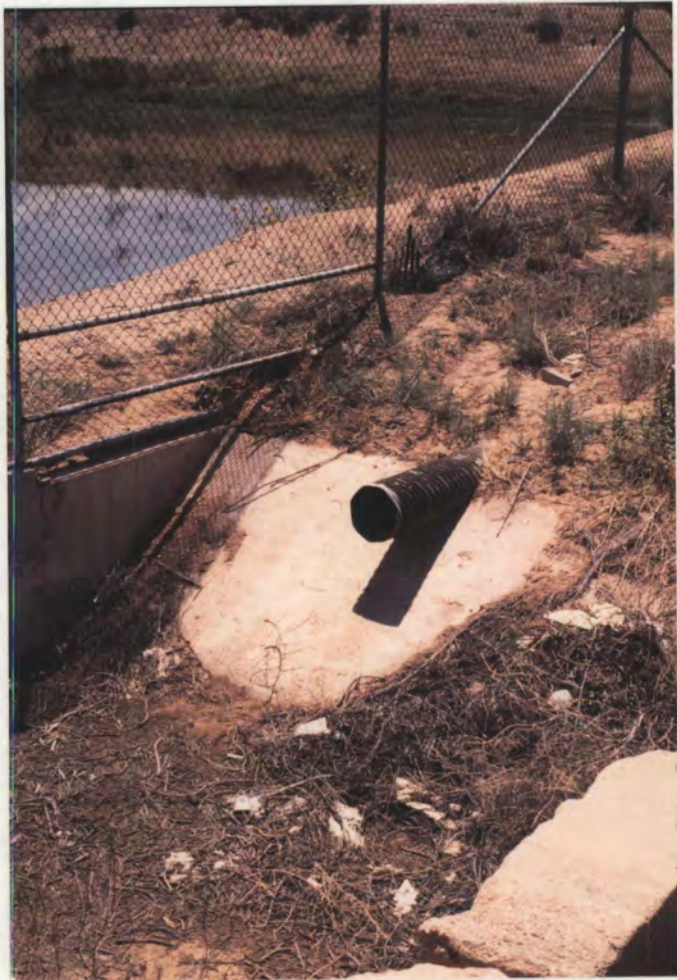
16.



17.



18.



19.



20.



21.

APPENDIX D

MSDS

14 HUDSON AVENUE, TENAFEE, N.J. 07670
EMERGENCY TEL. NO. (201) 567-3000

DATE: February 23, 1968

SECTION I. PRODUCT IDENTIFICATION

TRADE NAME	SP 312
FORMULA	
Chemical Family	Aryl sulfonates, phosphates, carbonates, alkyl aryl polyether water.
Chemical Family	Liquid Cleaning Compound

SECTION II. HAZARDOUS INGREDIENTS

COMPONENT OR MATERIAL CHEMICAL NAMES	CAS NO.	DL	TLV (Units)
(None)			

SECTION III. PHYSICAL DATA

BOILING POINT (°F)	Approximately 212°F.	VAPOR PRESSURE, mm Hg @ 20°C (68°F)	Not applicable
EVAPORATION RATE (ETHER = 1)	Not applicable	VAPOR DENSITY (AIR = 1) @ 60-80°F	Not applicable
SOLUBILITY IN H ₂ O, % by wt @ 20°C (68°F)	Complete	% VOLATILES BY VOL. @ 70°F	Not applicable
SPECIFIC GRAVITY H ₂ O = 1 @ 75°F	1.097	pH	(as received) 12.0
APPEARANCE & ODOR	Clear liquid - mild odor.		

SECTION IV. FIRE AND EXPLOSION DATA

FLASH POINT (Method Used)	None	FLAMMABLE EXPLOSIVE LIMITS	UPPER	LOWER
EXTINGUISHING MEDIA	Not applicable		NOT	APPLICABLE
SPECIAL FIRE FIGHTING PROCEDURES	None			
UNUSUAL FIRE & EXPLOSION HAZARDS	None known			

SECTION V. EMERGENCY AND FIRST AID PROCEDURES

EYES	Flush with water for 15 minutes. If irritation persists, consult physician.
SKIN	Rinse with water for 15 minutes. If irritation persists, consult physician.
INHALATION	Remove to fresh air.
INGESTION	Get medical attention immediately.

HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

Not applicable.

EFFECTS OF OVEREXPOSURE
INHALATION

Not determined.

SKIN

Can cause dryness and irritation on prolonged contact.

EYES

Will cause irritation or burns on contact.

CHRONIC OVEREXPOSURE EFFECTS

Not determined.

SECTION VII. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY

Product is stable

INCOMPATIBILITY

Do not mix with strong acids.

HAZARDOUS DECOMPOSITION PRODUCTS

None known.

CONDITIONS CONTRIBUTING TO POLYMERIZATION

Will not occur.

SECTION VIII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Flush away with water or mop up.

NEUTRALIZING CHEMICALS

Not applicable.

WASTE DISPOSAL METHOD

Dispose of in accordance with local, state and Federal E.P.A. regulations.

SECTION IX. VENTILATION AND PERSONAL PROTECTIVE EQUIPMENT

VENTILATION REQUIREMENTS

None required.

SPECIAL PERSONAL
PROTECTIVE
EQUIPMENT

RESPIRATORY

Not required under normal use conditons.

EYE

Splashproof goggles if splashing is anticipated.

GLOVES

Rubber for prolonged contact or sensitive skin.

OTHER CLOTHING & EQUIPMENT

Eve wash and shower station.

SECTION X. SPECIAL PRECAUTIONS INCLUDING STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING & STORAGE (Always refer to label directions when using.)

Keep from freezing. If frozen allow to thaw and roll the drum.

D.O.T. SHIPPING CLASSIFICATION

Liquid Cleaning Compound.

HAZCHEM ENVIRONMENTAL SERVICES, INC.
 3855 South Evans Blvd., Suite 405 • Tucson, Arizona 85714
 Tucson (602) 741-0100 Phoenix (602) 861-2120

The information contained herein has been compiled from data presented in various technical sources believed to be accurate. HAZCHEM makes no warranties and assumes no liability in connection with the use of this information. It is the user's responsibility to determine the suitability of this information and to assure the adoption of necessary safety precautions.

MATERIAL SAFETY DATA SHEET

Section 1. Identity of Material

Product Name or Number TRICHLOROTRIFLUOROETHANE (113)				
Synonyms FREON, REFRIGERANT				
Formula FCI ₂ CCIF ₂		CAS Number 000 076 131		Chemical Family
Regulated Identification	DOT Proper Shipping Name NA			
	Shipping ID No. UN	NA	EPA Hazardous Waste ID No.	NA
<input type="checkbox"/> Known	<input type="checkbox"/> Some Probable	Hazardous Ingredients	%	CAS Number
		TRICHLOROTRIFLUOROETHANE	100	000 076 131

Section 2. Hazard Specifications

Known Hazards Under 29 CFR 1910.1200					TLV=	NA	ppm.	mg/m ³	
	Yes	No		Yes	No	PEL=	NA	ppm.	mg/m ³
Combustible Liquid		X	Skin Hazard	X		NFPA Hazard Signal			
Flammable Material		X	Eye Hazard	X					
Pyrophoric Material		X	Toxic Agent		X	Health	1	Flammability	0
Explosive Material		X	Highly Toxic Agent		X	Stability	0	Special	0
Unstable Material		X	Sensitizer	X		DOT Hazard Class			
Water Reactive Material		X	Carcinogen		INA				
Oxidizer		X	Reproductive Toxin		INA	EPA Hazard Waste Class			
Organic Peroxide		X	Blood Toxin		INA				
Corrosive Material		X	Nervous System Toxin		INA	NA			
Compressed Gas		X	Lung Toxin		INA				
Irritant	X		Liver Toxin		INA	NA			
			Kidney Toxin		INA				

Section 3. Safe Usage Data

Protective Equipment Types	Eyes IF EYE CONTACT IS PROBABLE THEN GOGGLES ARE RECOMMENDED
	Respiratory
	Gloves USE APPROPRIATE GLOVES FOR PROLONGED USE
	Other
Ventilation	General Mechanical
	Local Exhaust
Precautions	Handling & Storage
	Other

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authorization of OAKITE
PRODUCTS, INC. is prohibited.

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME OAKITE PRODUCTS, INC.		EMERGENCY TELEPHONE NO. 201-464-6900
ADDRESS (Number, Street, City, State, and ZIP Code) 50 Valley Road, Berkeley Heights New Jersey 07922		
CHEMICAL NAME AND SYNONYMS OAKITE RR CLEANER		
CHEMICAL FAMILY Alkali	FORMULA Proprietary	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Sodium hydroxide				15	2mg/M ³
Sodium carbonate				50	not established
Inorganic phosphate salts				6.2	not established

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	N/A	SPECIFIC GRAVITY (H ₂ O=1) Bulk density	9.4 #/gal.
VAPOR PRESSURE (mm Hg.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (_____ = 1)	N/A
SOLUBILITY IN WATER @ 70°F. Moderate @ 212°F. Appreciable		pH @ 1 to 8 oz/gal.	12.5-12.7
APPEARANCE AND ODOR Off-white powder with small beads; soapy odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None.	FLAMMABLE LIMITS	N/A	Lel	Uel
EXTINGUISHING MEDIA	Will not burn or support combustion.				
SPECIAL FIRE FIGHTING PROCEDURES	N/A				
UNUSUAL FIRE AND EXPLOSION HAZARDS Attacks some metals including aluminum, zinc, magnesium and tin giving off hydrogen gas.					

The information contained herein has been compiled from data presented in various technical sources believed to be accurate. HAZCHEM makes no warranties and assumes no liability in connection with the use of this information. It is the user's responsibility to determine the suitability of this information and to assure the adoption of necessary safety precautions.

MATERIAL SAFETY DATA SHEET

Section 1. Identity of Material

SP-325

Product Name or Number		PAINT THINNER, GENERAL	
Synonyms			
Formula		CAS Number	Chemical Family
Regulated Identification	DOT Proper Shipping Name FLAMMABLE LIQUID, NOS		
	Shipping ID No.	UN 1993 NA	EPA Hazardous Waste ID No. D001
SOME PROBABLE Hazardous Ingredients			% CAS Number
VARIOUS MINERAL SPIRITS			
ALIPHATIC HYDROCARBON (ISOPARAFFINS & NAPHTHENES)			
CHLORINATED HYDROCARBONS			
AROMATIC HYDROCARBONS			
ACETATE ESTERS			

Section 2. Hazard Specifications

Known Hazards Under 29 CFR 1910.1200				TLV=	NA	ppm.	mg/m ³
	Yes	No		Yes	No		
Combustible Liquid		X	Skin Hazard	X		PEL=	NA ppm. mg/m ³
Flammable Material	X		Eye Hazard	X		NFPA Hazard Signal	
Poisonous Material		X	Toxic Agent	X		Health	2
Explosive Material		X	Highly Toxic Agent	X		Flammability	3
Unstable Material		X	Sensitizer	X		Stability	0
Water Reactive Material		X	Carcinogen		INA	Special	0
Oxidizer		X	Reproductive Toxin		INA	DOT Hazard Class	
Organic Peroxide		X	Blood Toxin		INA	FLAMMABLE LIQUID	
Corrosive Material		X	Nervous System Toxin		INA	EPA Hazard Waste Class	
Compressed Gas		X	Lung Toxin		INA	IGNITABLE WASTE	
Irritant	X		Liver Toxin		INA		
			Kidney Toxin		INA		

Section 3. Safe Usage Data

Protective Equipment Types	Eyes	IF EYE CONTACT IS PROBABLE THEN GOGGLES ARE RECOMMENDED
	Respiratory	USE A RESPIRATOR IF MISTS OR VAPORS ARE PRESENT
	Gloves	USE APPROPRIATE GLOVES FOR PROLONGED USE
	Other	
Ventilation	General Mechanical	USE FANS IN CLOSED AREAS
	Local Exhaust	
Precautions	Handling & Storage	STORE IN WELL VENTILLATED AREA AWAY FROM IGNITION SOURCES
	Other	

Section 4. Emergency Response Data

Fire	Extinguishing Media	CO ₂ , DRY CHEMICAL, WATER SPRAY OR FOAM
	Special Procedures	
	Unusual Hazards	
Exposure	First Aid Measures	FLUSH EYES WITH WATER; RINSE SKIN WITH SOAP AND WATER. INHALATION: REMOVE TO FRESH AIR. INGESTION: CALL PHYSICIAN
	Steps to be Taken	ABSORB WITH INERT ABSORBENT AND CONTAINERIZE IN PLASTIC OR GLASS
RO	Waste Disposal Method	PLACE EMPTY CONTAINERS IN TRASH; OTHERS FOR DISPOSAL PLACE IN HAZARDOUS MATERIAL STORAGE AREA

Section 5. Physical Hazard Data

Flammability	LFL=	NA	%	Flash Point	NA	°F	°C
	UFL=	NA	%		Method Used	NA	
Stability	Stable	<input checked="" type="checkbox"/>	Conditions to Avoid	NA			
	Unstable	<input type="checkbox"/>	Hazardous Decomp PPTS	NA			
Hazardous Polymerization	May Occur	<input type="checkbox"/>	Conditions to Avoid	NA			
	Will Not Occur	<input checked="" type="checkbox"/>					
Incompatibility	Materials to Avoid OXIDIZING AGENTS						

Section 6. Health Hazard Data

Effects of Exposure	SKIN AND EYE IRRITANT TOXIC BY INGESTION
Emergency Treatment	FLUSH EYES WITH WATER; RINSE SKIN WITH SOAP AND WATER INGESTION: CALL PHYSICIAN

Section 7. Physical and Chemical Properties

Boiling Point=	NA	°F	°C	Vapor Density (Air =1)	NA	Volatile Components	NA	%
Vapor Press=	NA	mmHg	psi	Specific Gravity (water=1)	NA	pH	NA	
Solubility in H ₂ O	NA			Will Dissolve in	NA	Evaporation Rate (=1)	NA	
Appearance	NA			Material Form:	Paste	Powder		
Odor	NA				Solid	<input checked="" type="checkbox"/> Liquid	Gas	

Section 8. Party Preparing Data

Reference Sources	Name (Print)	KENNETH MCGOVERN
	Signature	<i>Kenneth McGovern</i>
	Title	CHEMICAL ENGINEER
	Date	19 APRIL 1988
	Additional Information Hazchem Environmental Services, Inc. (602) 741-0100	

Abbreviations: N/A= Not Available or Not Applicable

**ARDROX****MATERIAL SAFETY DATA SHEET****I. PRODUCT IDENTIFICATION**

Trade Name (as labeled) Leeder Ardrex 368-G-1
Chemical Names, Common Names Blend
Manufacturer's Name Ardrex Inc.
Address 16961 Knott Avenue, La Mirada, CA 90638
Emergency Phone 800-424-9300 Name of Preparer Narendra Shah
Business Phone 714 739-2821 Date Prepared May 2, 1986

II. HAZARDOUS INGREDIENTS

CHEMICAL NAMES	CAS NUMBERS	APPROXIMATE PERCENT	EXPOSURE LIMITS IN AIR		
			ACGIH (TLV)	OSHA (PEL)	OTHER
<u>Sodium Hydroxide</u>	<u>1310732</u>	<u>Less than 15</u>			

III. PHYSICAL PROPERTIES

Vapor Density (Air=1) Greater than 1 Melting Point or Range, °F. -
Specific Gravity 1.17 Boiling Point or Range, °F. 212°
Solubility in Water Soluble
Vapor Pressure, mmHg at 20°C Same as water
Evaporation Rate (butyl acetate = 1) Less than 1.0
Appearance and Odor Dark Brown, No objectionable odor.

HOW TO DETECT THIS SUBSTANCE (Warning properties of substance as a gas, vapor, dust, or mist)

Alkaline Liquid

IV. FIRE AND EXPLOSION

Flash Point, °F. (give method) _____

Autoignition Temperature, °F. _____

Flammable Limits in air, volume %: Lower _____ Upper _____

Fire Extinguishing Materials:

____ Water Spray

____ Carbon Dioxide

____ Other:

____ Foam

____ Dry Chemical

Special Firefighting Procedures: _____

Unusual Fire and Explosion Hazards: _____

V. HEALTH HAZARD INFORMATION

SYMPTOMS or OVEREXPOSURE for each potential route of exposure.

Inhaled: Irritation

Contact with Skin or Eyes: Irritation or mild burn.

Absorbed through Skin: _____

Swallowed: Irritation of stomach.

HEALTH EFFECTS OR RISKS FROM EXPOSURE. Explain in lay terms. Attach extra page if more space is needed.

Acute: Irritation of skin, eyes, mucous membrane and stomach.

Chronic: Same as above.

FIRST AID: EMERGENCY PROCEDURES

Eye Contact: Flush with plenty of cold water. Get medical attention

Skin Contact: Wash with water.

Inhaled: Move subject to fresh air.

Swallowed: Drink water with citrus fruit juice.

SUSPECTED CANCER AGENT?

☒ NO: This product's ingredients are not found in the lists below.

YES: ☐ Federal OSHA ☐ NTP ☐ IARC ☐ Cal/OSHA (See note)

NOTE: California employers using Cal/OSHA-regulated carcinogens must register with Cal/OSHA.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

RECOMMENDATIONS TO PHYSICIAN

VI. REACTIVITY DATA

Stability: ☒ Stable ☐ Unstable

Conditions to avoid:

Incompatibility (materials to avoid) Acids

INCPON CWOR

Hazardous decomposition products (including combustion products):
None

Hazardous Polymerization: _____ May occur x Will not occur

Conditions to Avoid: _____

VII. SPILL, LEAK AND DISPOSAL PROCEDURES

Spill response procedures (include employee protection measures):

Wear safety glasses, gloves and apron. Flush to sewer with plenty of water.

Preparing wastes for disposal (container types, neutralization, etc.):

Neutralize to proper pH as per local code.

Note: Dispose of all wastes in accordance with federal, state and local regulations.

VIII. SPECIAL HANDLING INFORMATION

Ventilation and engineering controls Mechanical

Respiratory protection None

Eye Protection (Type) Safety

Gloves (specify material) Rubber

Other Clothing and Equipment Rubber Apron

Work practices, hygienic practices Wear all protective aids.

Other handling and storage requirements Store in cool dry place.

Protective measures during maintenance of contaminated equipment
Wear all protective aids.

IX. LABELING

Labeling (precautionary statements) TL-2, TL-25

D.O.T. Label Corrosive

RECEIVED
MAY 10 1988
USON CMOC

APPENDIX E

UST Notification Forms

Notification for Underground Storage Tanks

STATE USE ONLY

FOR
TANKS
IN
AZ

RETURN
COMPLETED
FORM
TO

UST Coordinator
Arizona Department of Health Services
Environmental Health Services
2005 N. Central
Phoenix, AZ 85004

I.D. Number

3587

Date Received

GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act, (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or, in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means—

(a) in the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and

(b) in the case of any underground storage tank in use before November 8, 1984, but no longer in use on that date, any person who owned such tank immediately before the discontinuation of its use.

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing: 1. gasoline, used oil, or diesel fuel, and 2. industrial solvents, pesticides, herbicides or fumigants.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:

1. farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
2. tanks used for storing heating oil for consumptive use on the premises where stored;
3. septic tanks;

4. pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which is an interstate pipeline facility regulated under State laws;
5. surface impoundments, pits, ponds, or lagoons;
6. storm water or waste water collection systems;
7. flow-through process tanks;
8. liquid traps or associated gathering lines directly related to oil or gas production and gathering operations;
9. storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where To Notify? Completed notification forms should be sent to the address given at the top of this page.

When To Notify? 1. Owners of underground storage tanks in use or that have been taken out of operation after January 1, 1974, but still in the ground, must notify by May 8, 1986. 2. Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use.

Penalties: Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed \$10,000 for each tank for which notification is not given or for which false information is submitted.

INSTRUCTIONS

Please type or print in ink all items except "signature" in Section V. This form must be completed for each location containing underground storage tanks. If more than 5 tanks are owned at this location, photocopy the reverse side, and staple continuation sheets to this form.

Indicate number of continuation sheets attached

I. OWNERSHIP OF TANK(S)

Owner Name (Corporation, Individual, Public Agency, or Other Entity)

Pacific Fruit Express Company

Street Address

2501 E. Fairland Stravenue

County

Pima

City

Tucson,

State

AZ

ZIP Code

85713

Area Code

602

Phone Number

629-2350

Type of Owner (Mark all that apply ☒)

☐ Current

☐ State or Local Gov't

☒ Private or Corporate

☐ Former

☐ Federal Gov't (GSA facility I.D. no. _____)

☐ Ownership uncertain

II. LOCATION OF TANK(S)

(If same as Section I, mark box here ☒)

Facility Name or Company Site Identifier, as applicable

Street Address or State Road, as applicable

County

City (nearest)

State

ZIP Code

Indicate number of tanks at this location

2

Mark box here if tank(s) are located on land within an Indian reservation or on other Indian trust lands ☐

III. CONTACT PERSON AT TANK LOCATION

Name (If same as Section I, mark box here ☐)

Bill T. Schuler

Job Title

Operations Manager

Area Code

602

Phone Number

629-2350

IV. TYPE OF NOTIFICATION

☐ Mark box here only if this is an amended or subsequent notification for this location.

V. CERTIFICATION (Read and sign after completing Section VI.)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner or owner's authorized representative

CARL E. MILCHEN, DGM

Signature

Carl E. Milchen

Date Signed

11/18/87

CONTINUE ON REVERSE SIDE

Location (from Section 11)

U.S. Government Printing Office: 1984-496-735